Body Builders Layout Book

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WHAT'S NEW

- Revised Pro Power Onboard Guidance
- Update Model Lineup / Weight Charts
- Updated SEIC Guidance
- Removed Medium Roof 130" wheelbase model

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IMPORTANT NOTICES

The information described herein is believed to be correct at the time of publication, but accuracy cannot be guaranteed. Ford reserves the right to discontinue models or change specifications or designs at any time without notice and without incurring any obligation.

Representations regarding the compliance of any Ford- manufactured incomplete vehicle to any rule, regulation or standard issued pursuant to the National Traffic and Motor Vehicle Safety Act or the Canadian Motor Vehicle Safety Act are set forth only in the Incomplete Vehicle Manual (IVM) which accompanies each incomplete vehicle.

Regulations such as those issued by the Federal Highway Administration (FHA) or issued pursuant to the Occupational Safety and Health Act (OSHA), and/or state, provincial, and local laws and regulations may require installation of additional equipment for the particular use intended for the vehicle. It is the responsibility of the subsequent stage manufacturer or completed vehicle alterer and the vehicle purchaser to ascertain how the vehicle will ultimately be used, if FHA, OSHA or state provincial or local regulations apply and how the vehicle as completed will comply with those requirements. Nothing contained herein is to be construed as a representation that such equipment required for the particular use intended has been installed on the completed or incomplete vehicle.

REFERENCE INFORMATION

Ford Body Builder Advisory Service Publications

This document is an example of a program-specific Body Builders Layout Book (BBLB) published by the Ford Body Builder Advisory Service (BBAS) team. Each Ford Commercial Truck vehicle line has a similar document that aims to provide detailed information which may be of interest to a subsequent-stage manufacturer or alterer.

The Ford Transit and Transit Connect also have a Body and Equipment Mounting Manual (BEMM), which is a comprehensive resource dedicated to body and equipment mounting information.

Yet another source of program-specific information are the “Vehicle Specification” documents available on the Ford BBAS website. Information typically found in these documents are vehicle curb and accessory weights, vehicle dimensions, component descriptions, capacities, GAWRs, alternator output, powertrain output and gear ratios.

In addition to the program-specific documents, there are several Ford BBLB documents that contain general best practices or information on specific subjects that span multiple vehicle lines. These include:

- General BBLB - contains Definitions, Design Recommendations and Vehicle Storage Guidelines.
- Snowplow BBLB
- Pickup Box Removal BBLB

These publications are updated every model year and can be accessed via the web at https://www.fordpro.com/en-us/upfit/publications/. For BBLB and BEMM documents, expand the “Body Builder Layout Book” Section to view all available documents. For Vehicle Specifications, expand the “Vehicle Specifications” section. The website search function can be used to filter for specific content or vehicle line.

Ford Body Builder Advisory Service Bulletins

Occasionally, the Ford BBAS team will create an SVE “Bulletin” to address a specific issue or distribute important information in a timely manner. These documents can be accessed via the web at https://www.fordpro.com/en-us/upfit/publications/. The website search function can be used to filter for specific content or vehicle line.

If applicable, information from each SVE bulletin will be incorporated into the appropriate BBLB document the following model year. In some cases, SVE bulletins will continue to be referenced in this document.

Ford Body Builder Advisory Service Contact

The Ford Truck Body Builder Advisory Service may be consulted if questions regarding the completion of Ford commercial vehicles are not adequately addressed in the documentation described above. For assistance call (877) 840-4338 or e-mail via the web at https://www.fordpro.com/en-us/upfit/contact-us/.

For Ford vehicle CAD requests, please visit https://www.fordpro.com/en-us/upfit/cad/.

For both Questions and CAD Requests, please be as specific as possible with the request details to assure the most accurate and timely response.

Ford Service Publications

Ford Service Technical Resources (including wiring diagrams, repair manuals and diagnostic tool support) are available by subscription via the Motorcraft website: www.motorcraftservice.com

The following publications are examples of digital and printed manuals which are available from Helm Incorporated; call 1-800-782-4356 or contact Helm, Inc. at their website www.helminc.com:

- Ford Truck Shop Manuals
- Ford Towing Manuals
- Ford Wiring Diagrams

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MODEL LINEUP: PASSENGER VAN

PASSENGER VAN												
						Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Trans	GVWR (Lbs)	MAX Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
LONG 148	LR	3.5L GTDI	10R80	9250	2937	3477	2835	6312	4465	5780	1117	11200
		3.5L GTDI	10R80	9250	3141	3282	2825	6108	4130	5780	1321	11200
		3.5L PFDi	10R80	9250	3000	3430	2819	6249	4465	5780	1180	11200
		3.5L PFDi	10R80	9250	3207	3233	2809	6042	4130	5780	1387	11200
		3.5L GTDI	10R80	9400	3024	3477	2835.	6312	4465	5780	1248	11200
		3.5L GTDI	10R80	9400	3230	3282	2825	6108	4130	5780	1021	11200
		3.5L PFDi	10R80	9400	3087	3430	2819	6249	4465	5780	1311	11200
		3.5L PFDi	10R80	9400	3296	3233.	2809	6042	4130	5810	1087	11200
		3.5L GTDI	10R80	9550	3174	3477	2835	6312	4465	5830	967	11200
		3.5L PFDi	10R80	9550	3237	3430	2819	6249	4465	5830	1030	11200
	MR	3.5L GTDI	10R80	9250	2807	3515	2927	6442	4465	5780	988	11200
		3.5L GTDI	10R80	9250	3009	3322	2919	6241	4130	5780	1189	11200
		3.5L PFDi	10R80	9250	2871	3469	2910	6379	4465	5780	1051	11200
		3.5L PFDi	10R80	9250	3072	3274	2904	6178	4130	5780	1252	11200
		3.5LGTDI	10R80	9400	2893	3514	2927	6442	4465	5780	1118	11200
		3.5L GTDI	10R80	9400	3096	3324	2916	6241	4130	5780	888	11200
		3.5L PFDi	10R80	9400	2957	3468	2909	6378	4465	5780	1182	11200
		3.5L PFDi	10R80	9400	3085	3277	2900	6178	4130	5780	951	11200
		3.5L GTDI	10R80	9500	3196	3324	2917	6241	4130	5780	989	11200
		3.5L PFDi	10R80	9500	3185	3278	2901	6178	4130	5780	1052	11200
		3.5L GTDI	10R80	9550	3040	3519	2926	6445	4465	5830	835	11200
		3.5L PFDi	10R80	9550	3100	3474	2911	6385	4465	5830	895	11200
		3.5L GTDI	10R80	9400	3085	3277	2900	6178	4130	5780	951	11200
	HR	3.5L GTDI	10R80	9250	2662	3521	3067	6588	4465	5780	842	11200
		3.5L GTDI	10R80	9250	2866	3326	3058	6384	4130	5780	1046	11200
		3.5L PFDi	10R80	9250	2725	3474	3051	6525	4465	5780	905	11200
		3.5L PFDi	10R80	9250	2932	3277	3041	6318	4130	5780	1112	11200
		3.5LGTDI	10R80	9400	2746	3521	3067	6588	4465	5780	973	11200
		3.5L GTDI	10R80	9400	2952	3326	3058	6384	4130	5780	746	11200
		3.5L PFDi	10R80	9400	2810	3474	3051	6525	4465	5780	1036	11200
		3.5L PFDi	10R80	9400	2993	3277	3041	6318	4130	5780	812	11200
		3.5L PFDi	10R80	9500	3093	3277	3041	6318	4130	5780	912	11200
		3.5L GTDI	10R80	9550	2896	3521	3067	6588	4465	5830	692	11200
		3.5L PFDi	10R80	9550	2961	3474	3049	6523	4465	5830	757	11200
		3.5L GTDI	10R80	10100	3079	3162	3789	6951	4130	6725	879	11200
		3.5L PFDi	10R80	10100	3146	3113	3771	6885	4130	6725	945	11200
		3.5L GTDI	10R80	10360	3110	3357	3822	7178	4465	6725	763	11200
		3.5L GTDI	10R80	10360	3409	3162	3789	6951	4130	6725	990	11200
		3.5L PFDi	10R80	10360	3475	3113	3771	6885	4130	6725	1056	11200

Note: 3.5L GTDI is EcoBoost V6 variant

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MODEL LINEUP: CARGO VAN (REGULAR WB)

CARGO VAN												
						Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Drive Type	GVWR (Lbs)	MAX Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
130	LR	3.5L PFDi	RWD	8670	3665	2943	2061	5004	4130	5070	2557	12000
		3.5L GTDI		8670	3600	2992	2077	5069	4130	5070	2492	12600
		3.5L PFDi	AWD	8670	3469	3137	2064	5200	4630	5070	2361	12000
		3.5L GTDI		8670	3402	3187	2081	5268	4630	5070	2293	12600
		3.5L PFDi	RWD	8800	3745	2943	2061	5004	4130	5070	2557	12000
		3.5L GTDI		8800	3680	2992	2077	5069	4130	5070	2492	12600
		3.5L PFDi	AWD	8800	3547	3137	2064	5200	4630	5070	2361	12000
		3.5L GTDI		8800	3479	3187	2081	5268	4630	5070	2293	12600
		3.5L PFDi	RWD	9150	4095	2943	2061	5004	4130	5515	2557	12000
		3.5L GTDI		9070	4000	2992	2077	5069	4130	5515	2492	12600
		3.5L PFDi	AWD	9070	3869	3137	2064	5200	4630	5515	2361	12000
		3.5L GTDI		9070	3802	3187	2081	5268	4630	5515	2293	12600
		3.5L PFDi	RWD	9150	4095	2943	2061	5004	4130	5515	2557	12000
		3.5L GTDI		9150	4030	2992	2077	5069	4130	5515	2492	12600
		3.5L PFDi	AWD	9150	3897	3137	2064	5200	4630	5515	2361	12000
		3.5L GTDI		9150	3829	3187	2081	5268	4630	5515	2293	12600
		3.5L PFDi	RWD	9500	4445	2943	2061	5004	4130	5750	2557	12000
		3.5L GTDI		9500	4380	2992	2077	5069	4130	5750	2492	12600
		3.5L PFDi	AWD	9500	4247	3137	2064	5200	4630	5750	2361	12000
		3.5L GTDI		9500	4179	3187	2081	5268	4630	5750	2293	12600

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MODEL LINEUP: CARGO VAN (LWB)

CARGO VANS LWB												
					MAX	Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Drive Type	GVWR (Lbs)	Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
LONG 148	LR	3.5L PFDi	RWD	8,670	3561	3036	2073	5108	4130	5070	2453	12000
		3.5L GTDI			3496	3086	2088	5174	4130	5070	2387	12600
		3.5L PFDi	AWD		3356	3232	2082	5313	4630	5070	2248	12000
		3.5L GTDI			3292	3280	2097	5378	4630	5070	2183	12600
		3.5L PFDi	RWD	8,800	3640	3036	2073	5108	4130	5070	2453	12000
		3.5L GTDI			3574	3086	2088	5174	4130	5070	2387	12600
		3.5L PFDi	AWD		3433	3232	2082	5313	4630	5070	2248	12000
		3.5L GTDI			3368	3280	2097	5378	4630	5070	2183	12600
		3.5L PFDi	RWD	9,070	3963	3035	2072	5106	4130	5515	2455	12000
		3.5L GTDI			3895	3085	2090	5175	4130	5515	2386	12600
		3.5L PFDi	AWD		3756	3232	2082	5313	4630	5515	2248	12000
		3.5L GTDI			3691	3279	2099	5379	4630	5515	2182	12600
		3.5L PFDi	RWD	9,150	3992	3035	2072	5106	4130	5515	2455	12000
		3.5L GTDI			3923	3085	2090	5175	4130	5515	2386	12600
		3.5L PFDi	AWD		3783	3232	2082	5313	4630	5515	2248	12000
		3.5L GTDI			3717	3279	2099	5379	4630	5515	2182	12600
		3.5L PFDi	RWD	9500	4342	3035	2072	5106	4130	5750	2455	12000
		3.5L GTDI			4291	3085	2072	5157	4630	5750	2404	12600
		3.5L PFDi	AWD		4133	3232	2082	5313	4630	5750	2248	12000
		3.5L GTDI			4076	3280	2089	5370	4630	5750	2191	12600
		3.5L GTDI	RWD	9,900	4742	3035	2072	5106	4630	6300	2455	12000
		3.5L GTDI			4691	3085	2072	5157	4630	6300	2404	12600
		3.5L PFDi	AWD		4533	3232	2082	5313	4630	6300	2248	12000
		3.5L GTDI			4476	3280	2089	5370	4630	6300	2191	12600
		3.5L PFDi	RWD	9,950	4792	3035	2072	5106	4630	6300	2455	12000
		3.5L GTDI			4741	3085	2072	5157	4630	6300	2404	12600
		3.5L PFDi	AWD		4583	3232	2082	5313	4630	6300	2248	12000
		3.5L GTDI			4526	3280	2089	5370	4630	6300	2191	12600
	MR	3.5L PFDi	RWD	8,670	3413	3072	2185	5256	4130	5070	2305	12000
		3.5L GTDI			3349	3120	2201	5321	4130	5070	2240	12600
		3.5L PFDi	AWD		3208	3268	2194	5461	4630	5070	2100	12000
		3.5L GTDI			3145	3314	2210	5525	4630	5070	2036	12600
		3.5L PFDi	RWD	8,800	3490	3072	2185	5256	4130	5070	2305	12000
		3.5L GTDI			3426	3120	2201	5321	4130	5070	2240	12600
		3.5L PFDi	AWD		3283	3268	2194	5461	4630	5070	2100	12000
		3.5L GTDI			3219	3314	2210	5525	4630	5070	2036	12600
		3.5L PFDi	RWD	9,070	3815	3070	2183	5254	4130	5515	2306	12000
		3.5L GTDI			3749	3120	2201	5321	4130	5515	2240	12600
		3.5L PFDi	AWD		3608	3268	2194	5461	4630	5515	2100	12000
		3.5L GTDI			3545	3314	2210	5525	4630	5515	2036	12600
		3.5L PFDi	RWD	9,150	3842	3071	2184	5254	4130	5515	2307	12000
		3.5L GTDI			3776	3120	2201	5321	4130	5515	2240	12600
		3.5L PFDi	AWD		3633	3268	2194	5461	4630	5515	2100	12000
		3.5L GTDI			3569	3314	2210	5525	4630	5515	2036	12600

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MODEL LINEUP: CARGO VAN (LWB)

CARGO VANS LWB												
					MAX	Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Drive Type	GVWR (Lbs)	Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
LONG 148	MR	3.5L PFDi	RWD	9,500	4192	3071	2184	5254	4130	5750	2307	12000
		3.5L GTDI			4134	3119	2193	5312	4630	5750	2249	12600
		3.5L PFDi	AWD		3983	3268	2194	5461	4630	5750	2100	12000
		3.5L GTDI			3919	3314	2210	5525	4630	5750	2036	12600
		3.5L PFDi	RWD	9,900	4592	3071	2184	5254	4630	6300	2307	12000
		3.5L GTDI			4534	3119	2193	5312	4630	6300	2249	12600
		3.5L PFDi	AWD		4383	3268	2194	5461	4630	6300	2100	12000
		3.5L GTDI			4319	3314	2210	5525	4630	6300	2036	12600
		3.5L PFDi	RWD	9950	4642	3071	2184	5254	4630	6300	2307	12000
		3.5L GTDI			4584	3119	2193	5312	4630	6300	2249	12600
		3.5L PFDi	AWD		4433	3268	2194	5461	4630	6300	2100	12000
		3.5L GTDI			4369	3314	2210	5525	4630	6300	2036	12600
	HR	3.5L PFDi	RWD	9070	3720	3097	2253	5349	4130	5515	2212	12000
		3.5L GTDI			3654	3148	2268	5416	4130	5515	2145	12600
		3.5L PFDi	AWD		3513	3294	2263	5556	4630	5515	2005	12000
		3.5L GTDI			3450	3342	2277	5620	4630	5515	1941	12600
		3.5L PFDi	RWD	9,150	3747	3097	2253	5349	4130	5515	2212	12000
		3.5L GTDI			3680	3148	2268	5416	4130	5515	2145	12600
		3.5L PFDi	AWD		3537	3294	2263	5556	4630	5515	2005	12000
		3.5L GTDI			3473	3342	2277	5620	4630	5515	1941	12600
		3.5L PFDi	RWD	9500	4097	3097	2253	5349	4130	5750	2212	12000
		3.5L GTDI			4045	3147	2254	5401	4630	5750	2160	12600
		3.5L PFDi	AWD		3887	3294	2263	5556	4630	5750	2005	12000
		3.5L GTDI			3830	3342	2271	5614	4630	5750	1947	12600
		3.5L PFDi	RWD	9,900	4497	3097	2253	5349	4630	6300	2212	12000
		3.5L GTDI			4445	3147	2254	5401	4630	6300	2160	12600
		3.5L PFDi	AWD		4287	3294	2263	5556	4630	6300	2005	12000
		3.5L GTDI			4230	3342	2271	5614	4630	6300	1947	12600
		3.5L PFDi	RWD	9,950	4547	3097	2253	5349	4630	6300	2212	12000
		3.5L GTDI			4495	3147	2254	5401	4630	6300	2160	12600
		3.5L PFDi	AWD		4337	3294	2263	5556	4630	6300	2005	12000
		3.5L GTDI			4280	3342	2271	5614	4630	6300	1947	12600

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MODEL LINEUP: CARGO VAN (ELWB)

CARGO VANS ELWB												
					MAX	Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Drive Type	GVWR (Lbs)	Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
EXTENDED 148	HR	3.5L PFDi	RWD	9,070	3517	2959	2594	5552	4130	5660	2009	12000
		3.5L GTDI			3452	3004	2614	5618	4130	5660	1943	12600
		3.5L PFDi	AWD		3310	3155	2604	5759	4630	5660	1802	12000
		3.5L GTDI			3248	3198	2623	5822	4630	5660	1739	12600
		3.5L PFDi	RWD	9,150	3542	2959	2594	5552	4130	5660	2009	12000
		3.5L GTDI			3476	3004	2614	5618	4130	5660	1943	12600
		3.5L PFDi	AWD		3332	3155	2604	5759	4630	5660	1802	12000
		3.5L GTDI			3269	3198	2623	5822	4630	5660	1739	12600
		3.5L PFDi	RWD	9,500	3892	2959	2594	5552	4130	6000	2009	12000
		3.5L GTDI			3826	3004	2614	5618	4130	6000	1943	12600
		3.5L PFDi	AWD		3682	3155	2604	5759	4630	6000	1802	12000
		3.5L GTDI			3619	3198	2623	5822	4630	6000	1739	12600
		3.5L PFDi	RWD	9,900	4250	2962	2631	5593	4630	6300	1968	12000
		3.5L PFDi	AWD		4018	3159	2664	5824	4630	6300	1737	12000
		3.5L GTDI	AWD		4019	3198	2623	5822	4630	6300	1739	13000
		3.5L GTDI	RWD		4226	3004	2614	5618	4630	6300	1943	13000
		3.5L PFDi	AWD		3847	3162	2830	5992	4630	6835	1569	12000
		3.5L PFDi	RWD		4080	2966	2796	5762	4630	6835	1799	12000
		3.5L PFDi	RWD	9,950	4300	2962	2631	5593	4630	6300	1968	12000
		3.5L GTDI	RWD		3943	3231	2716	5947	4630	6300	1614	13000
		3.5L PFDi	AWD		4068	3159	2664	5824	4630	6300	1737	12000
		3.5L GTDI	AWD		3833	3206	2850	6056	4630	6835	1505	13000
		3.5L GTDI	RWD		4173	3037	2683	5720	4630	6300	1841	13000
		3.5L PFDi	AWD		3897	3162	2830	5992	4630	6835	1569	12000
		3.5L PFDi	RWD		4130	2966	2796	5762	4630	6835	1799	12000
		3.5L GTDI	AWD		4063	3012	2817	5829	4630	6835	1732	13000
		3.5L GTDI	RWD	11,000	5052	3040	2848	5888	4630	7700	2053	13000
		3.5L GTDI	AWD		4823	3235	2881	6116	4630	7700	1825	13000

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Body Builders Layout Book

TRANSIT

MODEL LINEUP: CARGO VAN - BEV

CARGO VANS												
						Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Trans	GVWR (Lbs)	MAX Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
130	LR	BEV- 68 kWH	AUTO	9500	3801	2834	2808	5642	4130	6000	1919	0
148	LR	BEV-68 kWH	AUTO	9500	3696	2986	2760	5746	4130	6000	1815	0
	LR	BEV-89.9 kWH	AUTO	9500	3249	3108	3080	6189	4130	6000	1372	0
	MR	BEV-68 kWH	AUTO	9500	3547	3022	2872	5894	4130	6000	1667	0
	MR	BEV-89.9 kWH	AUTO	9500	3100	3144	3192	6337	4130	6000	1224	0
	HR	BEV-68 kWH	AUTO	9500	3451	3048	2941	5989	4130	6000	1572	0
	HR	BEV-89.9 kWH	AUTO	9500	3004	3170	3261	6432	4130	6000	1129	0
148-EL	HR	BEV-68kWH	AUTO	9500	3246	2910	3282	6192	4130	6011	1369	0
	HR	BEV-89.9kWH	AUTO	9500	2799	3032	3602	6635	4130	6000	926	0

Body Builders Layout Book

TRANSIT

MODEL LINEUP: CHASSIS CAB

CHASSIS CAB												
						Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Drive	GVWR (Lbs)	MAX Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
138		3.5L PFDi	RWD	9,070	4805	3001	1263	4264	4130	5515	3266	12000
		3.5L GTDI			4731	3055	1284	4339	4130	5515	3191	12600
		3.5L PFDi	AWD		4598	3196	1276	4472	4630	5515	3058	12000
		3.5L GTDI			4524	3250	1296	4546	4630	5515	2984	12600
		3.5L PFDi	RWD	9,500	5235	3001	1263	4264	4130	5750	3266	12000
		3.5L GTDI			5161	3055	1284	4339	4130	5750	4241	12600
		3.5L PFDi	AWD		5028	3196	1276	4472	4630	5750	3058	12000
		3.5L GTDI			4954	3250	1296	4546	4630	5750	4034	12600
		3.5L GTDI	RWD	9,900	5382	3064	1454	4518	4630	6835	3586	13000
		3.5L GTDI	AWD		5157	3259	1484	4742	4630	6835	3362	13000
		3.5L PFDi	RWD	9,950	5511	3007	1431	4438	4630	6835	3092	12000
		3.5L GTDI			5432	3064	1454	4518	4630	6835	3586	13000
		3.5L PFDi	AWD		5286	3202	1461	4663	4630	6835	2867	12000
		3.5L GTDI			5207	3259	1484	4742	4630	6835	3362	13000
		3.5L GTDI	RWD	11,000	6452	3052	1496	4548	4630	7275	4932	15000
		3.5L GTDI	AWD		6238	3248	1513	4761	4630	7275	4719	15000
156		3.5L PFDi	RWD	9,070	4765	3043	1261	4304	4130	5515	3226	12000
		3.5L GTDI			4691	3097	1282	4379	4130	5515	3151	12600
		3.5L PFDi	AWD		4563	3235	1272	4507	4630	5515	3023	12000
		3.5L GTDI			4489	3288	1293	4581	4630	5515	2949	12600
		3.5L PFDi	RWD	9,500	5194	3044	1261	4305	4130	5750	3225	12000
		3.5L GTDI			5120	3098	1282	4380	4130	5750	4200	12600
		3.5L PFDi	AWD		4992	3236	1272	4508	4630	5750	3022	12000
		3.5L GTDI			4918	3289	1293	4582	4630	5750	3998	12600
		3.5L GTDI	RWD	9,900	5524	3094	1282	4376	4630	6300	3728	13000
		3.5L GTDI	AWD		5135	3289	1475	4764	4630	6835	3340	13000
		3.5L PFDi			5392	3236	1272	4508	4630	6300	3022	12000
		3.5L GTDI	RWD		5355	3098	1447	4545	4630	6835	3559	13000
		3.5L GTDI	AWD		5304	3286	1310	4596	4630	6300	3508	13000
		3.5L GTDI	RWD		5524	3094	1282	4376	4630	6300	3728	13000
		3.5L PFDi		9,950	5484	3041	1424	4465	4630	6835	3065	12000
		3.5L GTDI			5574	3094	1282	4376	4630	6300	3728	13000
		3.5L PFDi	AWD		5433	3229	1287	4517	4630	6300	3013	12000
		3.5L GTDI			5185	3289	1475	4764	4630	6835	3340	13000
		3.5L GTDI			5354	3286	1310	4596	4630	6300	3508	13000
		3.5L GTDI	RWD		5405	3098	1447	4545	4630	6835	3559	13000
		3.5L PFDi			5653	3038	1259	4297	4630	6300	3233	12000
		3.5L PFDi	AWD		5264	3233	1453	4685	4630	6835	2845	12000
		3.5L GTDI	RWD	11,000	6356	3145	1498	4643	4630	7275	4837	15000
		3.5L GTDI	AWD		6148	3338	1513	4852	4630	7275	4628	15000

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TRANSIT

MODEL LINEUP: CHASSIS CAB

CHASSIS CAB												
						Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Drive	GVWR (Lbs)	MAX Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
178		3.5L PFDi	RWD	9,500	5089	3126	1285	4411	4130	5750	3119	12000
		3.5L GTDI			5014	3179	1306	4485	4130	5750	4095	13000
		3.5L PFDi	AWD		4865	3320	1315	4635	4630	5750	2895	12000
		3.5L GTDI			4790	3374	1335	4709	4630	5750	3871	13000
		3.5L GTDI	RWD	9,900	5414	3179	1306	4485	4630	6300	3619	13000
		3.5L GTDI	AWD		5022	3377	1500	4878	4630	6835	3226	13000
		3.5L GTDI			5190	3374	1335	4709	4630	6300	3395	13000
		3.5L GTDI	RWD		5246	3183	1471	4654	4630	6835	3450	13000
		3.5L PFDi			5489	3126	1285	4411	4630	6300	3119	12000
		3.5L PFDi	AWD	9,950	5151	3320	1478	4798	4630	6835	2732	12000
		3.5L PFDi	RWD		5375	3126	1448	4574	4630	6835	2956	12000
		3.5L GTDI			5296	3183	1471	4654	4630	6835	3450	13000
		3.5L PFDi	AWD		5265	3320	1315	4635	4630	6300	2895	12000
		3.5L GTDI			5240	3374	1335	4709	4630	6300	3395	13000
		3.5L GTDI			5072	3377	1500	4878	4630	6835	3226	13000
		3.5L GTDI	RWD		5464	3179	1306	4485	4630	6300	3619	13000
		3.5L PFDi	AWD		5320	3317	1313	4630	4630	6300	2900	12000
		3.5L PFDi	RWD		5544	3123	1283	4406	4630	6300	3124	12000
		3.5L GTDI	RWD	11,000	6285	3206	1509	4715	4630	7275	4765	15000
		3.5L GTDI	AWD		6072	3402	1526	4927	4630	7275	4553	15000
178		BEV- 68 KWH	RWD	9500	4451	2989	2059	5048	3815	6000	3531	0
		BEV-89.9 kWH	RWD	9500	4014	3244	2241	5485	4130	6000	3094	0

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TRANSIT

MODEL LINEUP: CUTAWAY

CUTAWAY													
						Base Curb Weight			GAWR				
WB (in)	Roof (in)	Eng	Drive Type	GVWR (Lbs)	MAX Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
138		3.5L PFDi	RWD	9,070	4825	2990	1254	4245	4130	5515	3285	12000
		3.5L GTDI			4751	3044	1275	4319	4130	5515	3211	12600
		3.5L PFDi	AWD		4618	3185	1266	4452	4630	5515	3078	12000
		3.5L GTDI			4543	3239	1287	4526	4630	5515	3004	12600
		3.5L PFDi	RWD	9,500	5255	2990	1254	4245	4130	5750	3285	12000
		3.5L GTDI			5181	3044	1275	4319	4130	5750	4261	12600
		3.5L PFDi	AWD		5048	3185	1266	4452	4630	5750	3078	12000
		3.5L GTDI			4973	3239	1287	4526	4630	5750	4054	12600
		3.5L GTDI	RWD	9,900	5415	3044	1441	4485	4630	6835	3619	13000
		3.5L GTDI	AWD		5190	3239	1471	4709	4630	6835	3395	13000
		3.5L PFDi	RWD	9,950	5544	2987	1418	4405	4630	6835	3125	12000
		3.5L GTDI			5465	3044	1441	4485	4630	6835	3619	13000
		3.5L PFDi	AWD		5,319	3,182	1,448	4,630	4,630	6,835	2,900	12,000
		3.5L GTDI			5240	3239	1471	4709	4630	6835	3395	13000
		3.5L GTDI	RWD	11,000	6466	3044	1489	4533	4630	7275	4947	15000
		3.5L GTDI	AWD		6253	3241	1506	4747	4630	7275	4733	15000
156		3.5L PFDi	RWD	9,070	4765	3043	1261	4304	4130	5515	3226	12000
		3.5L GTDI			4691	3097	1282	4379	4130	5515	3151	12600
		3.5L PFDi	AWD		4563	3235	1272	4507	4630	5515	3023	12000
		3.5L GTDI			4489	3288	1293	4581	4630	5515	2949	12600
		3.5L PFDi	RWD	9,500	5196	3043	1261	4304	4130	5750	3226	12000
		3.5L GTDI			5122	3096	1282	4378	4130	5750	4202	12600
		3.5L PFDi	AWD		4993	3234	1272	4506	4630	5750	3024	12000
		3.5L GTDI			4919	3288	1293	4580	4630	5750	4000	12600
		3.5L GTDI	RWD	9,900	5522	3096	1282	4378	4630	6300	3726	13000
		3.5L GTDI	AWD		5133	3291	1475	4766	4630	6835	3338	13000
		3.5L PFDi	RWD		5596	3043	1261	4304	4630	6300	3226	12000
		3.5L PFDi	AWD		5393	3234	1272	4506	4630	6300	3024	12000
		3.5L GTDI			5302	3288	1310	4598	4630	6300	3506	13000
		3.5L GTDI	RWD		5353	3100	1447	4547	4630	6835	3557	13000
		3.5L PFDi	RWD	9,950	5482	3043	1424	4467	4630	6835	3063	12000
		3.5L GTDI			5403	3100	1447	4547	4630	6835	3557	13000
		3.5L PFDi	AWD		5431	3231	1287	4519	4630	6300	3011	12000
		3.5L GTDI			5183	3291	1475	4766	4630	6835	3338	13000
		3.5L GTDI			5352	3288	1310	4598	4630	6300	3506	13000
		3.5L GTDI	RWD		5572	3096	1282	4378	4630	6300	3726	13000
		3.5L PFDi	AWD		5262	3235	1453	4687	4630	6835	2843	12000
		3.5L PFDi	RWD		5651	3040	1259	4299	4630	6300	3231	12000
		3.5L GTDI	RWD	11,000	6357	3145	1497	4642	4630	7275	4838	15000
		3.5L GTDI	AWD		6149	3338	1512	4851	4630	7275	4629	15000

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TRANSIT

MODEL LINEUP: CUTAWAY

CUTAWAY												
						Base Curb Weight			GAWR			
WB (in)	Roof (in)	Eng	Drive Type	GVWR (Lbs)	MAX Advert'd Payload	Front	Rear	Total	Max Front	Max Rear	Total ARC	Max GCWR
178		3.5L GTDI	AWD	9,500	4828	3350	1322	4672	4630	5750	3908	13000
		3.5L GTDI	RWD		5052	3155	1292	4448	4630	5750	4132	13000
		3.5L PFDi	AWD		4902	3296	1301	4597	4630	5750	2933	12000
		3.5L PFDi	RWD		5126	3102	1272	4373	4630	5750	3157	12000
		3.5L GTDI	AWD	9,900	5228	3350	1322	4672	4630	6300	3432	13000
					5059	3353	1487	4840	4630	6835	3264	13000
			RWD		5452	3155	1292	4448	4630	6300	3656	13000
					5283	3159	1457	4616	4630	6835	3488	13000
		3.5L PFDi	AWD		5302	3296	1301	4597	4630	6300	2933	12000
		3.5L PFDi	RWD		5526	3102	1272	4373	4630	6300	3157	12000
		3.5L GTDI	AWD	9,950	5278	3350	1322	4672	4630	6300	3432	13000
					5109	3353	1487	4840	4630	6835	3264	13000
		3.5L GTDI	RWD		5502	3155	1292	4448	4630	6300	3656	13000
					5333	3159	1457	4616	4630	6835	3488	13000
		3.5L PFDi	AWD		5352	3296	1301	4597	4630	6300	2933	12000
					5184	3300	1466	4766	4630	6835	2764	12000
			RWD		5576	3102	1272	4373	4630	6300	3157	12000
					5408	3105	1437	4542	4630	6835	2988	12000
		3.5L GTDI	AWD	11,000	6131	3363	1506	4868	4630	7275	4612	15000
		3.5L GTDI	RWD		6344	3167	1489	4656	4630	7275	4824	15000
178		BEV 68 kWH	RWD	9,500	4489	2965	2045	5011	3815	6000	3569	0
		BEV- 89.9 kWH			4052	3220	2228	5448	4130	6000	3132	0

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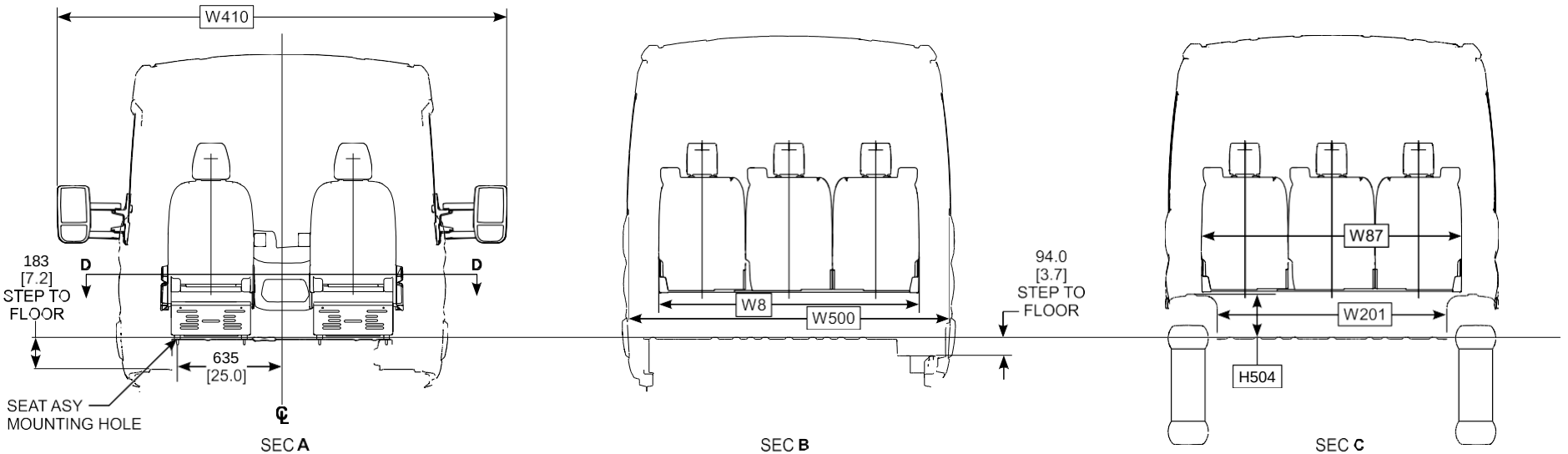
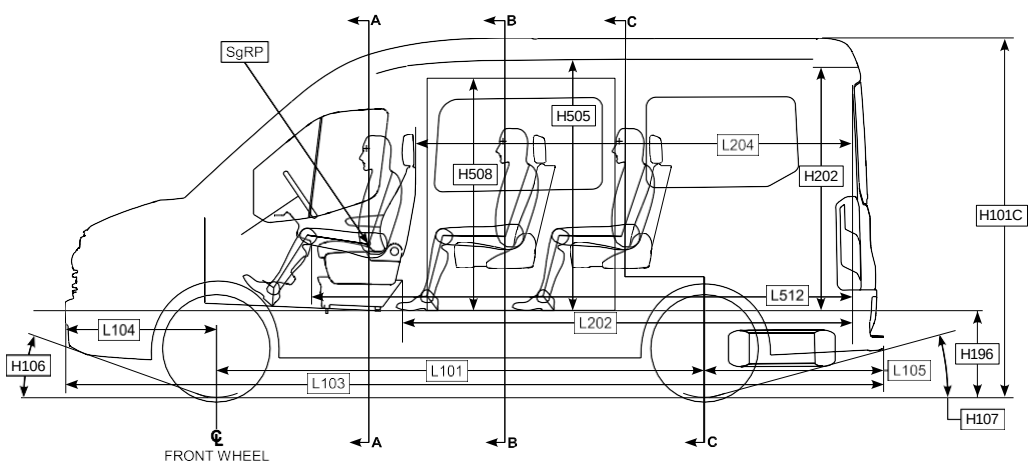
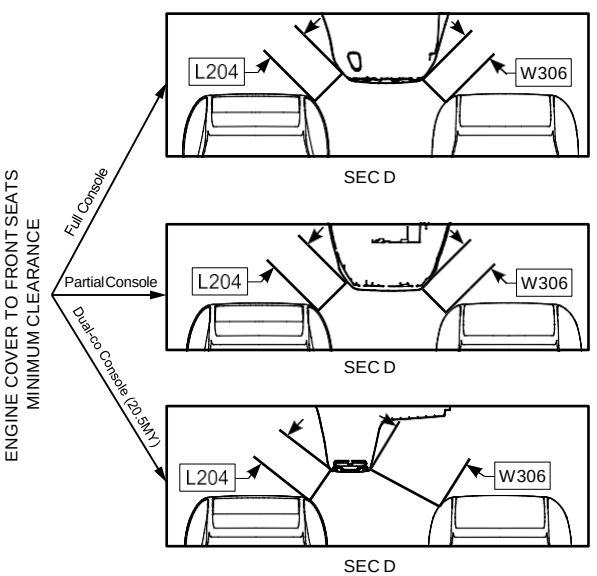
DIMENSIONAL DATA: 8-PASSENGER VAN (REGULAR WB)





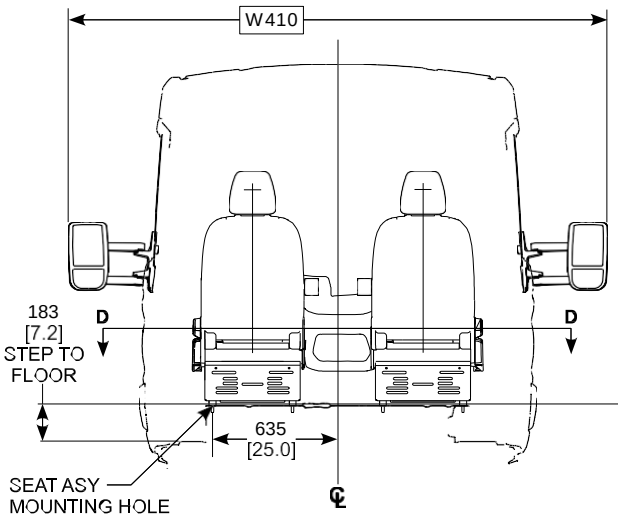


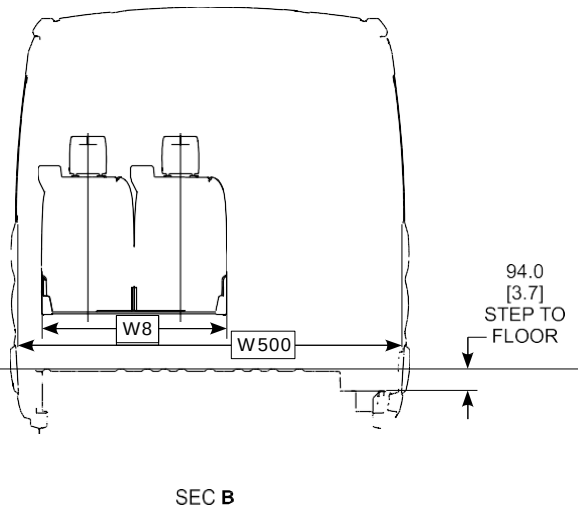
NOTE- [ ] DIMENSION ARE INCHES

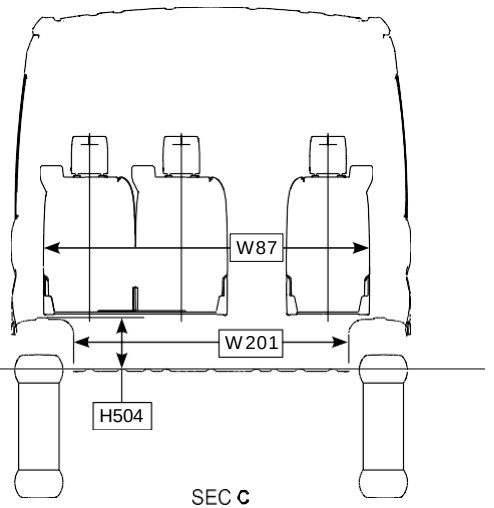
Body Builders Layout Book

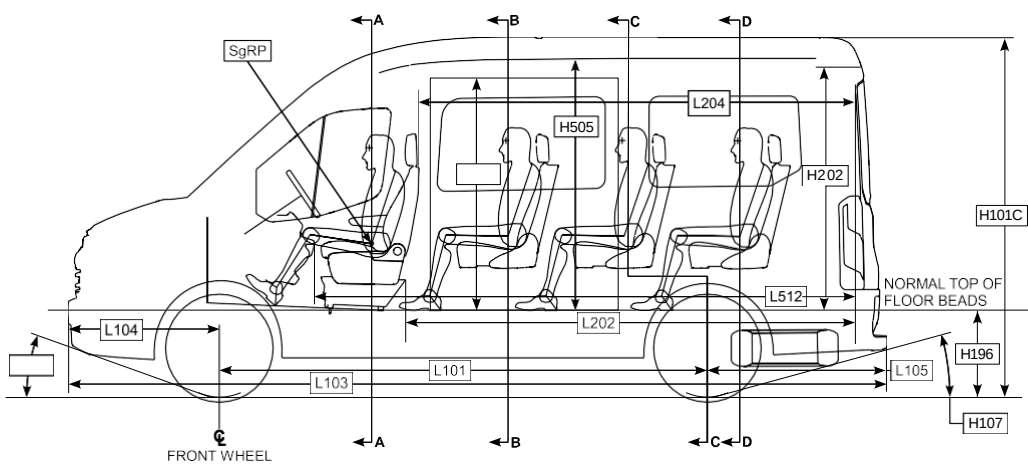
TRANSIT

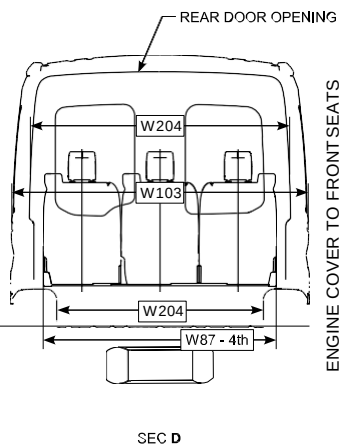
DIMENSIONAL DATA: 10-PASSENGER VAN (REGULAR WB)

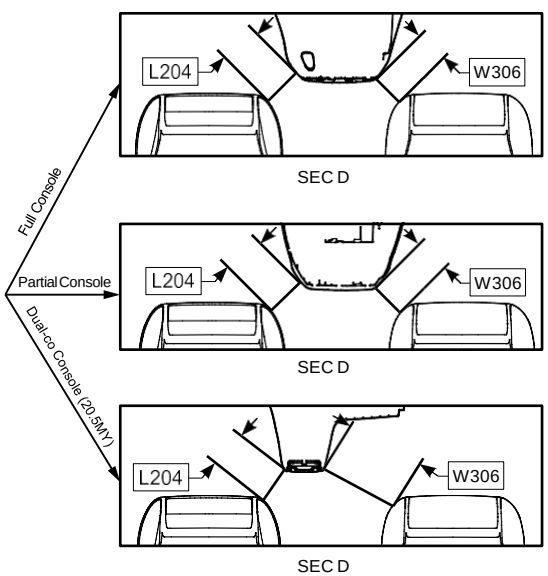








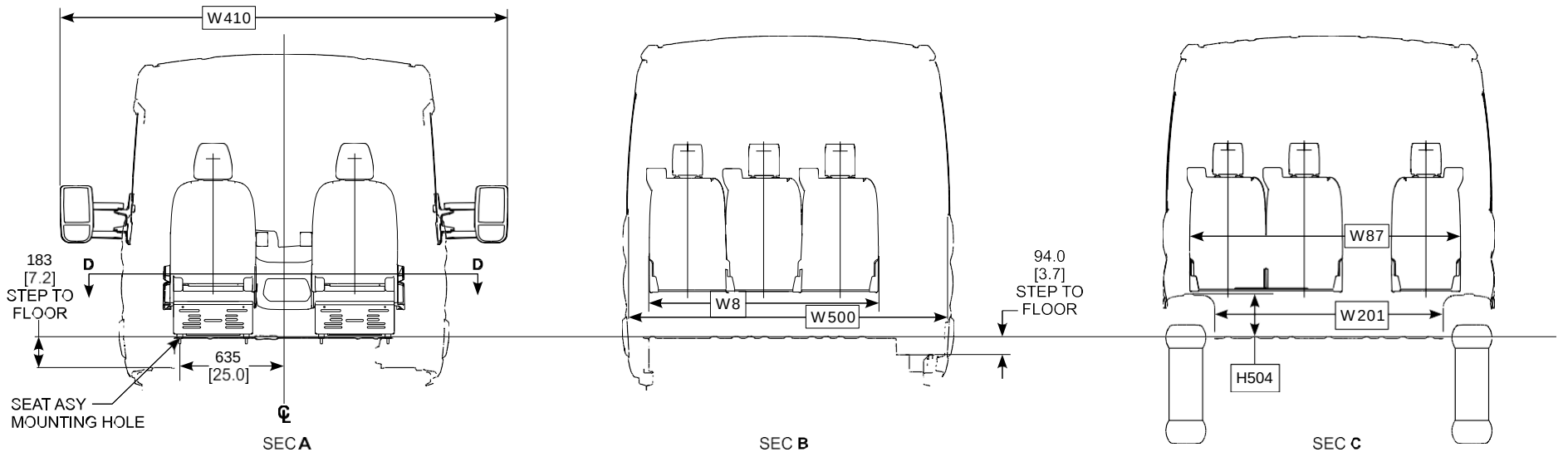


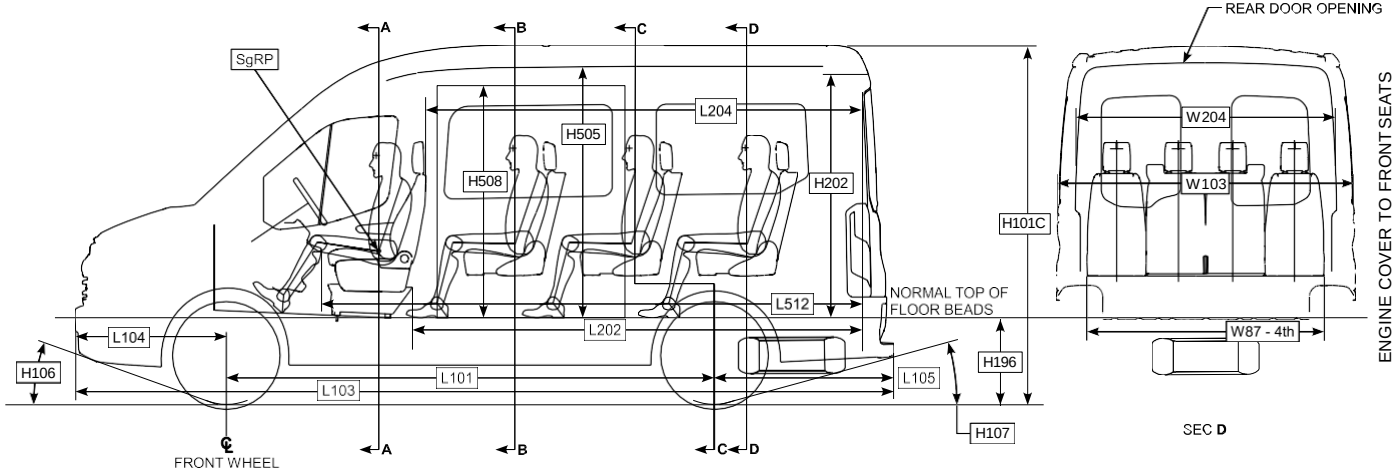


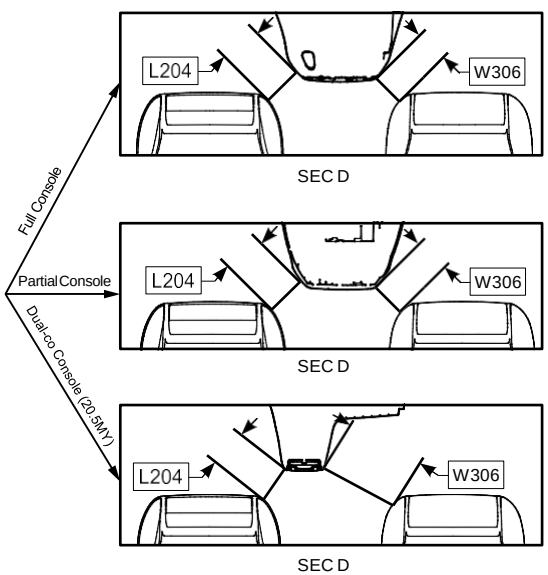
NOTE- [ ] DIMENSION ARE INCHES

TRANSIT

DIMENSIONAL DATA: 12-PASSENGER VAN (REGULAR WB)







NOTE- [ ] DIMENSION ARE INCHES

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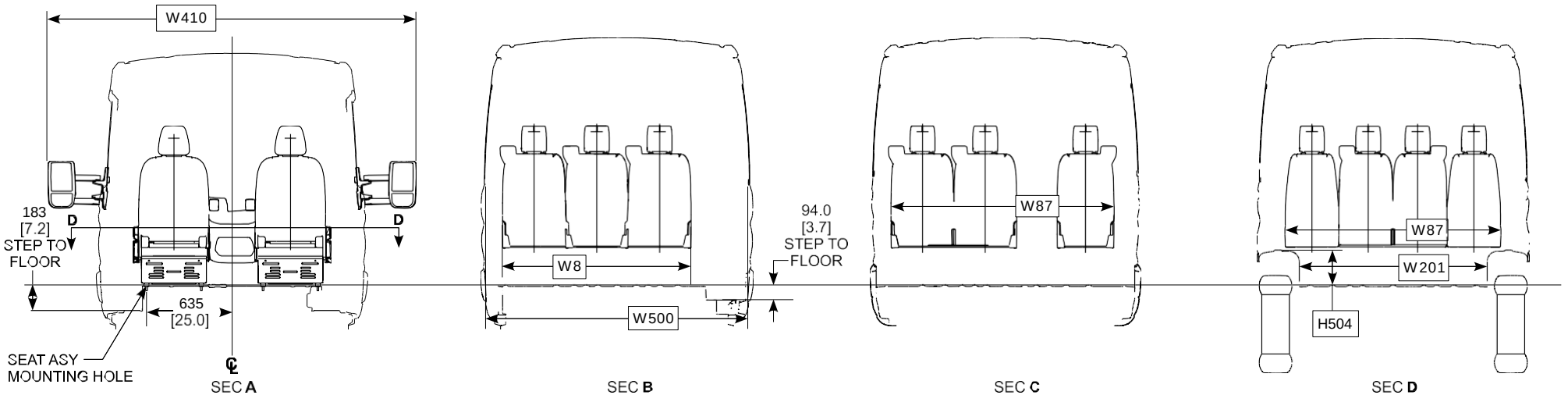
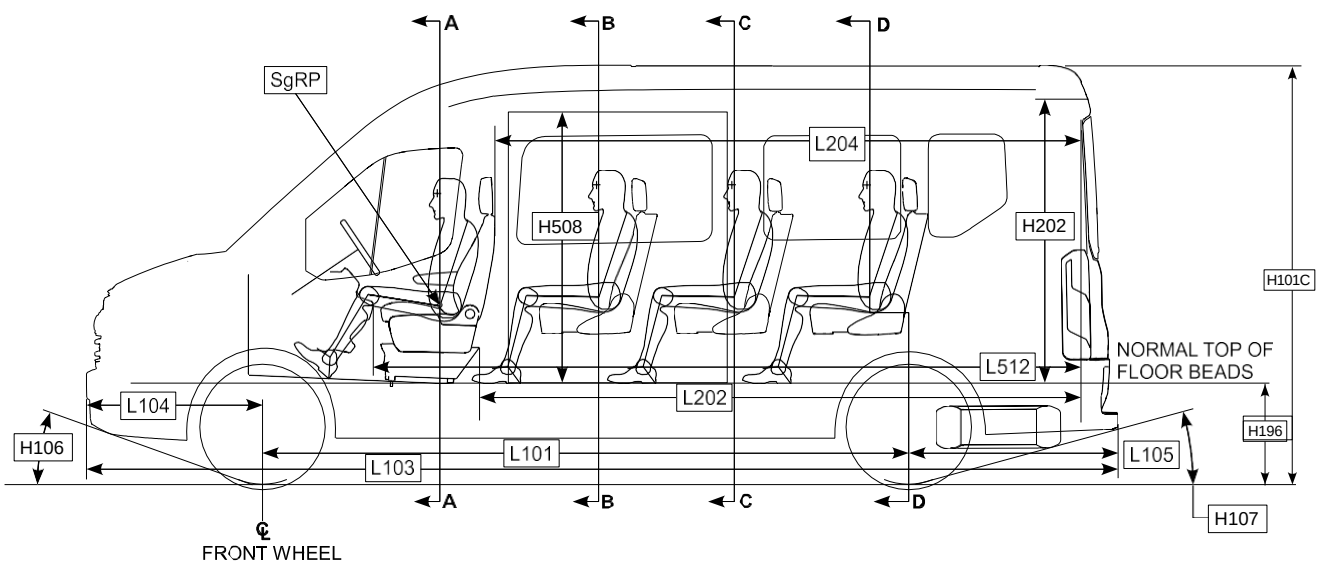
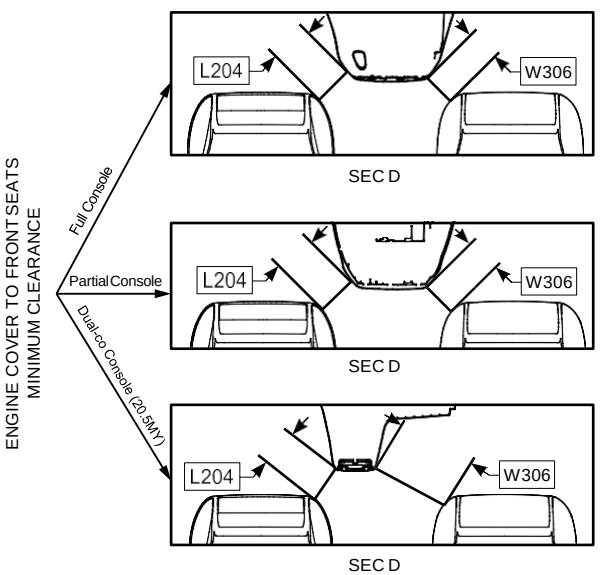
TRANSIT

DIMENSIONAL DATA: 12-PASSENGER VAN (LONG WB)



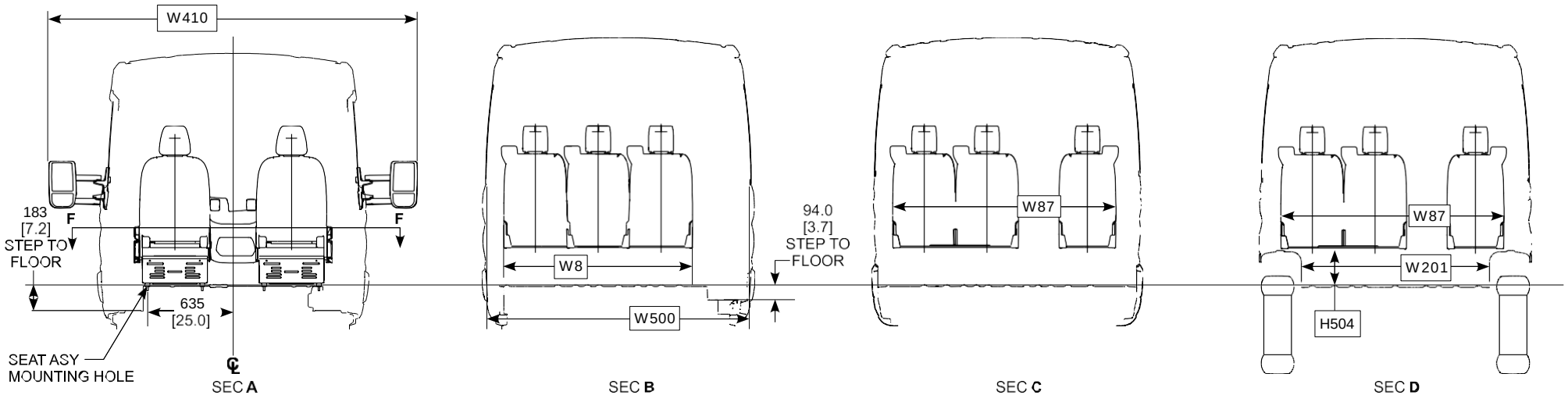


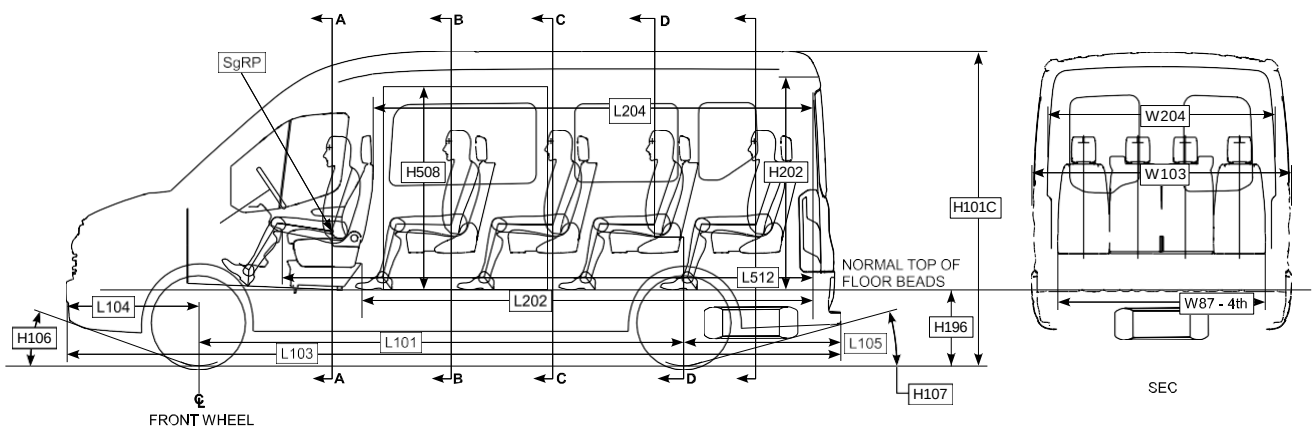


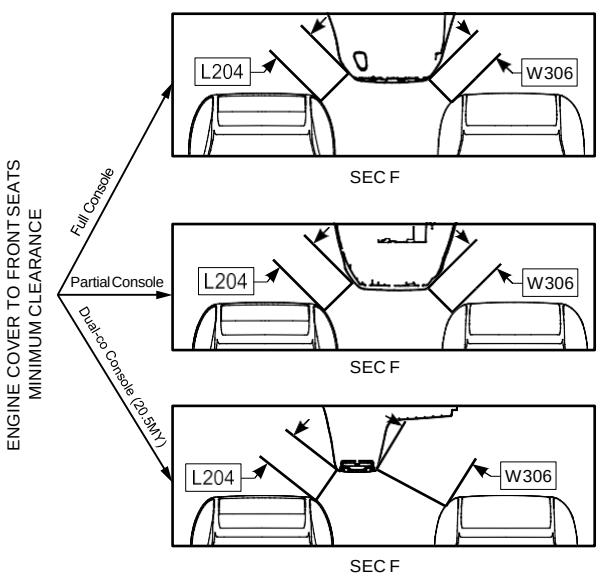
NOTE- [ ] DIMENSION ARE INCHES

TRANSIT

DIMENSIONAL DATA: 15-PASSENGER VAN (LONG WB)







NOTE- [ ] DIMENSION ARE INCHES

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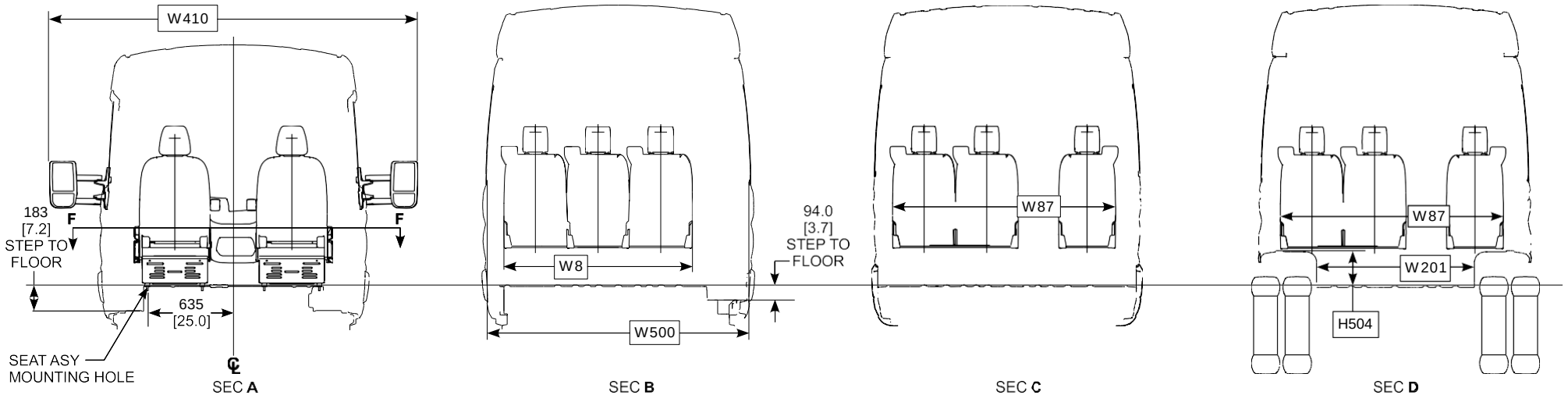
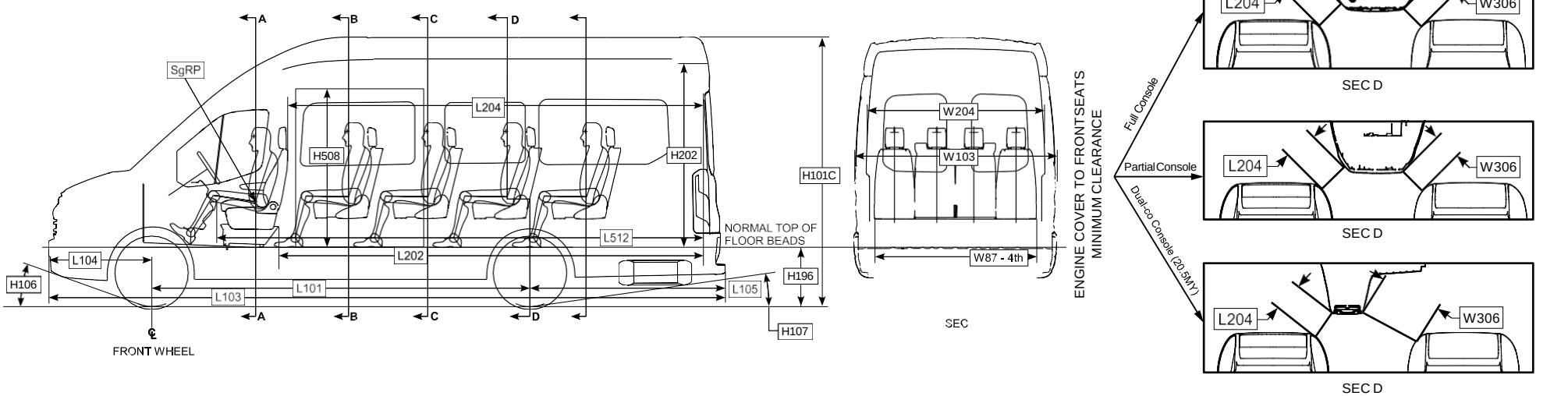
Body Builders Layout Book

TRANSIT

DIMENSIONAL DATA: 15-PASSENGER VAN (EXTENDED LENGTH LONG WB)





NOTE- [ ] DIMENSION ARE INCHES

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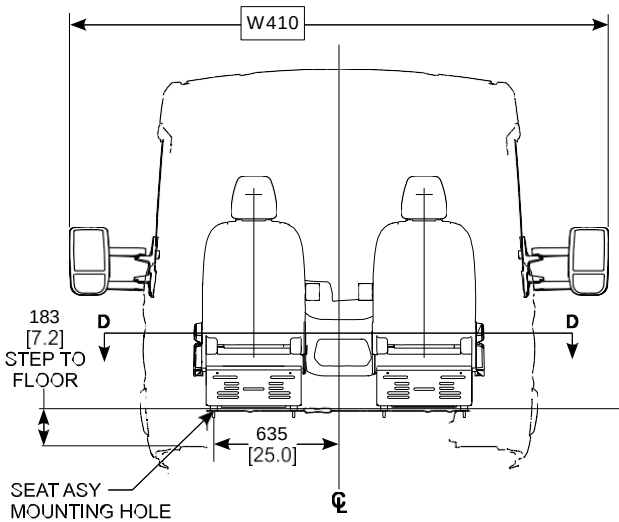
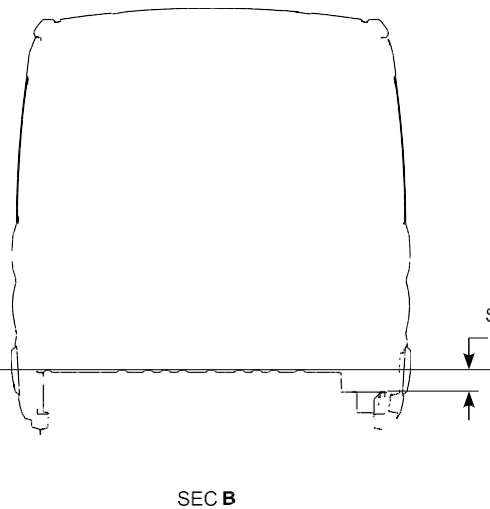
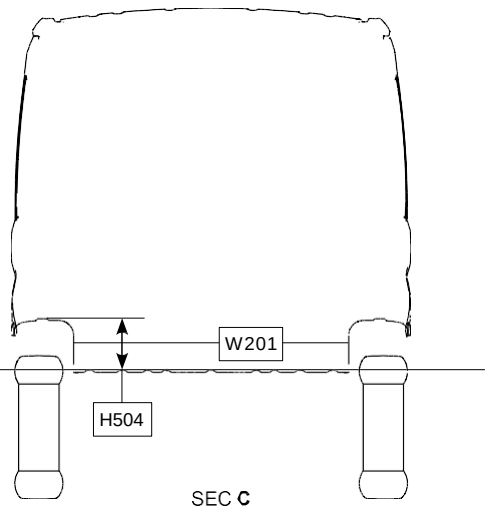
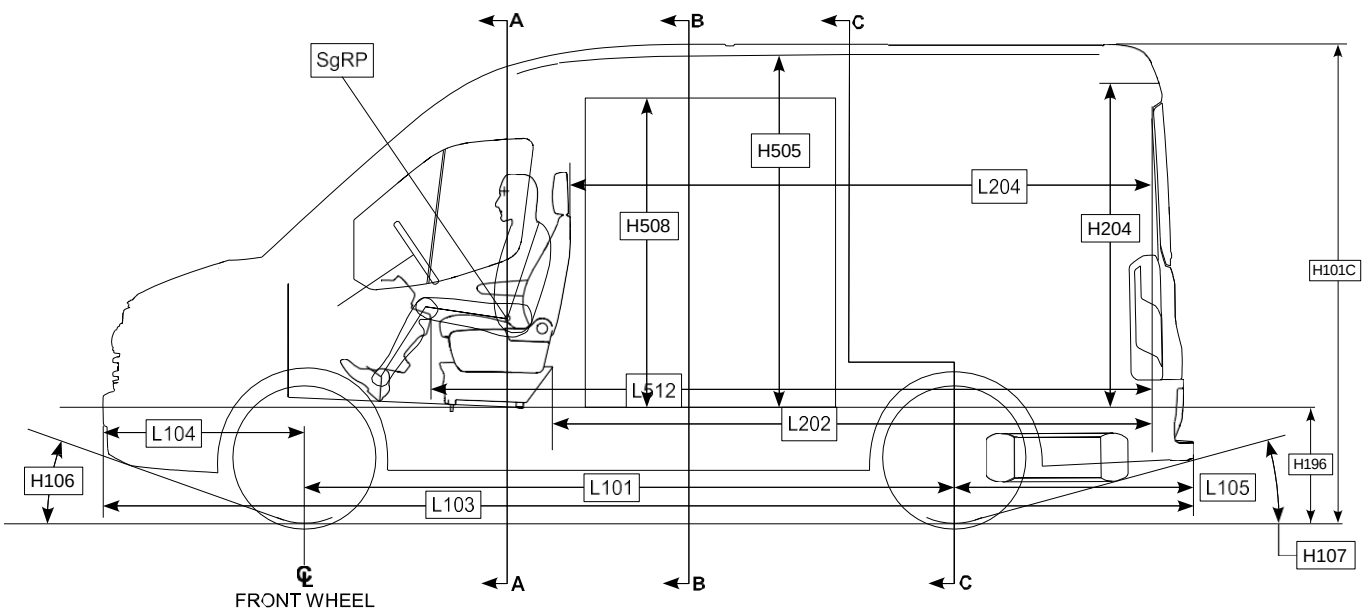
TRANSIT

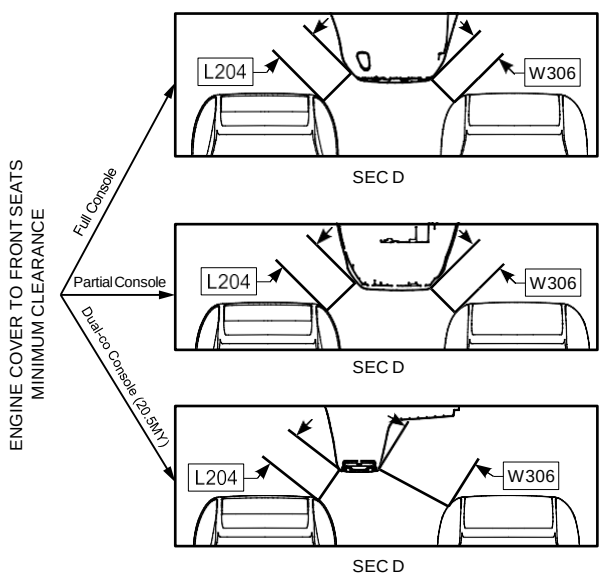
DIMENSIONAL DATA: 2-PASSENGER VAN











NOTE- [ ] DIMENSION ARE INCHES

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TRANSIT

DIMENSIONAL DATA: VAN DIMENSONAL CHART (SAE)

	Wheelbase (Medium, Long, Ext. Length)	Medium	Medium	Medium	Medium	Medium	Medium	Long	Long	Long	Long	Long	Long	Long	Long	Long	Ext. Length	Ext. Length	Medium	Medium	Long	Long	Long	Ext. Length
	Passenger (Pass.) / Cargo Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Cargo Van	Cargo Van	Cargo Van	Cargo Van	Cargo Van	Cargo Van
	Roof (Low , Medium, High)	Low	Medium	Low	Low	Medium	Medium	Low	Medium	High	Low	Low	Medium	Medium	High	High	High	High	Low	Medium	Low	Medium	High	High
	Passenger Capacity (2, 5, 8, 10, 12, 15)	2	2	8	10	8	10	2	2	2	12	15	12	15	12	15	2	15	2	2	2	2	2	2
	Rows of Seating	1	1	3 (2-3-3)	4 (2-2-3-3)	3 (2-3-3)	4 (2-2-3-3)	1	1	1	4 (2-3-3-4)	5 (2-3-3-3-4)	4 (2-3-3-4)	5 (2-3-3-3-4)	4 (2-3-3-4)	5 (2-3-3-3-4)	1	5 (2-3-3-3-4)	1	1	1	1	1	1
Dim Code	**EXTERIOR**																							
L101	Wheelbase [in]	129.9	129.9	129.9	129.9	129.9	129.9	147.6	147.6	147.6	147.6	147.6	147.6	147.6	147.6	147.6	147.6	147.6	129.9	129.9	147.6	147.6	147.6	147.6
L103	Length [in]	219.9	217.8	219.9	219.9	217.8	217.8	237.6	235.5	235.5	237.6	237.6	235.5	235.5	235.5	235.5	263.9	263.9	219.9	217.8	237.6	235.5	235.5	263.9
L103	Length w ith optional extended bumper [mm]	-	219.9	-	-	219.9	219.9	-	237.6	237.6	-	-	237.6	237.6	237.6	237.6	266.1	266.1	-	219.9	-	237.6	237.6	266.1
H101C	Height [in]	82.3	98.8	82.2	82.2	98.7	98.7	82.9	99.8	109.6	82.4	82.4	99.2	99.2	108.6	108.6	109.4	107.7	82.2	99.1	82.9	101.3	109.6	110.4
W103	Width - Excluding Mirrors [in]	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	-
W410	Width - Including Mirrors [in]	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4	97.4
W411	Width - Mirrors Folded [in]	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2	83.2
W101C	Front Track [in]	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	-
W102C	Rear Track [in]	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	-
L104	Front Overhang [in]	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3
L105	Rear Overhang [in]	49.7	47.6	49.7	49.7	47.6	47.6	49.7	47.6	47.6	49.7	49.7	47.6	47.6	47.6	47.6	76	76	49.7	47.6	49.7	47.6	47.6	76
L105	Rear Overhang with optional extended bumper [in]	-	49.7	-	-	49.7	49.7	-	49.7	49.7	-	-	49.7	49.7	49.7	49.7	78.1	78.1	-	49.7	-	49.7	49.7	78.1
H196	Load Height (Curb) [in]	28.2	28.2	28.2	28.2	28.2	28.2	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	27.8	27.8	28.9	28.9	28.7	28.7	28.7	28
H508	Side Cargo Door Opening Height [in]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49.6	63	49.6	63	63	63
L508	Side Cargo Door Opening Width - Hinged [in]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51.2	51.2	51.2	51.2	51.2	51.2
L508	Side Cargo Door Opening Width - Sliding [in]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51.2	51.2	51.2	51.2	51.2	51.2
H202	Rear Cargo Door Opening Height [in]	46.9	62.8	46.9	46.9	62.8	62.8	46.9	62.8	72.2	46.9	46.9	62.8	62.8	72.2	72.2	72.2	72.2	49.5	64.9	49.5	64.9	74.3	74.3
W203	Rear Cargo Door Opening Width [in]	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	59.8	61.7	61.7	61.7	61.7	61.7	61.7
H106	Approach Angle (Degrees)	19.24	20	19.24	1.24	19.24	20	19.34	19.76	19.96	19.34	19.34	19.76	19.76	19.96	19.96	19.94	19.94	18.8	18.79	19.68	16.63	19.98	20.3
H107	Departure Angle (Degrees)	16.6	16.55	16.6	16.6	16.55	16.55	17.68	15.85	15.72	17.68	17.68	15.85	15.85	15.72	15.72	11.8	11.8	19.3	19.02	18.95	18.76	18.64	11.91
H147	Break over Angle (Degrees)	18.83	18.76	18.83	18.83	18.76	18.76	16.53	15.34	15.2	16.53	16.53	15.34	15.34	15.2	15.2	15.2	15.2	19.4	19.8	17.82	17.65	17.47	17.69
Dim Code	**INTERIOR**																							
H61	Head Room - First Row [in]	40.8	52	40.8	40.8	52	52	40.8	52	56.6	40.8	40.8	52	52	56.6	56.6	56.6	56.6	40.8	52	40.8	52	56.6	56.6
H63	Head Room - Second Row [in]	-	-	41.1	41.1	55.8	55.8	-	-	-	41.1	41.1	55.8	55.8	65.2	65.2	-	65.2	-	-	-	-	-	-
H86	Head Room - Third Row [in]	-	-	40.6	40.6	55.8	55.8	-	-	-	40.6	40.6	55.8	55.8	65.2	65.2	-	65.2	-	-	-	-	-	-
H86-4th	Head Room - Fourth Row [in]	-	-	-	38.7	-	55.8	-	-	-	38.7	38.7	55.8	55.8	65.2	65.2	-	65.2	-	-	-	-	-	-
H86-5th	Head Room - Fifth Row [in]	-	-	-	-	-	-	-	-	-	-	38.1	-	52.6	-	61.3	-	61.3	-	-	-	-	-	-
L33	Maximum Leg Room - First Row [in]	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3
L34	Leg Room - First Row [in]	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7
L51	Leg Room - Second Row [in]	-	-	33.7	33.7	33.7	33.7	-	-	-	33.7	33.7	33.7	33.7	33.7	33.7	-	33.7	-	-	-	-	-	-
L86	Leg Room - Third Row [in]	-	-	35.6	35.6	35.6	35.6	-	-	-	35.6	35.6	35.6	35.6	35.6	35.6	-	35.6	-	-	-	-	-	-
L86-4th	Leg Room - Fourth Row [in]	-	-	-	35.6	-	35.6	-	-	-	35.6	35.6	35.6	35.6	35.6	35.6	-	35.6	-	-	-	-	-	-
L86-5th	Leg Room - Fifth Row [in]	-	-	-	-	-	-	-	-	-	-	35.6	-	35.6	-	35.6	-	35.6	-	-	-	-	-	-
W5	Hip Room - First Row [in]	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7
W6	Hip Room - Second Row [in]	-	-	69.6	69.6	69.6	69.6	-	-	-	69.6	69.6	69.6	69.6	69.6	69.6	-	69.6	-	-	-	-	-	-
W86	Hip Room - Third Row [in]	-	-	67.3	67.3	67.3	67.3	-	-	-	67.3	67.3	67.3	67.3	67.3	67.3	-	67.3	-	-	-	-	-	-
W86-4th	Hip Room - Fourth Row [in]	-	-	-	68	-	68	-	-	-	68	68	68	68	68	68	-	68	-	-	-	-	-	-
W86-5th	Hip Room - Fifth Row [in]	-	-	-	-	-	-	-	-	-	-	68	-	68	-	68	-	68	-	-	-	-	-	-
W3	Shoulder Room - First Row [in]	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9
W4	Shoulder Room - Second Row [in]	-	-	71.4	71.4	71.4	71.4	-	-	-	71.4	71.4	71.4	71.4	71.4	71.4	-	71.4	-	-	-	-	-	-
W85	Shoulder Room - Third Row [in]	-	-	67	67	67	67	-	-	-	67	67	67	67	67	67	-	67	-	-	-	-	-	-
W85-4th	Shoulder Room - Fourth Row [in]	-	-	-	67.8	-	67.8	-	-	-	67.8	67.8	67.8	67.8	67.8	67.8	-	67.8	-	-	-	-	-	-
W85-5th	Shoulder Room - Fifth Row [in]	-	-	-	-	-	-	-	-	-	-	67.8	-	67.8	-	67.8	-	67.8	-	-	-	-	-	-
L202	Cargo Length Front (at Floor) [in]	124	124	124	124	124	124	141.7	141.7	141.7	141.7	141.7	141.7	141.7	141.7	141.7	170.2	170.2	126	126	143.7	143.7	143.7	172.2
L204	Cargo Length Front (at Belt) [in]	115.1	115.1	115.1	115.1	115.1	115.1	132.8	132.8	132.8	132.8	132.8	132.8	132.8	132.8	132.8	161.3	161.3	115.9	115.9	133.6	133.6	133.6	162
W201	Cargo Width Betw een Wheelhouse [in]	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7	54.8	54.8	54.8	54.8	54.8	
H505	Cargo Height Maximum [in]	52.8	67.6	52.8	52.8	67.6	67.6	52.8	67.6	77	52.8	52.8	67.6	67.6	77	77	77	77	56.9	72	56.9	72	81.5	81.5
Dim Code	**CARGO CAPACITY**																							
V6	Cargo Volume Behind First Row (Van)	224.5	292.7	224.5	224.5	292.7	292.7	256.4	336.1	382.6	256.4	223.5	336.1	303.1	382.6	349.6	461.9	425.4	275	351.4	309.5	398.1	450.7	543.2
V7	Cargo Volume Behind Second Row (Van)	-	-	151.8	151.8	197.9	197.9	-	-	-	183	150	239.8	206.8	273	240.1	-	313.1	-	-	-	-	-	-
V9	Cargo Volume Behind Third Row (Van)	-	-	94.2	94.2	125	125	-	-	-	124.5	91.5	166.9	133.9	190	157	-	230	-	-	-	-	-	-
V12	Cargo Volume Behind Fourth Row (Van)	-	-	-	-	-	-	-	-	-	70.1	48.9	93.9	72.8	107	85.8	-	184	-	-	-	-	-	-
V13	Cargo Volume Behind Fifth Row (Van)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.5	-	-	-	-	-	-
V14	Cargo Volume - Max (Van)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	317.8	405.6	352.3	452.2	511.9	604.4
V15	Cargo Volume - Front Seat (Van)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.8	54.2	42.8	54.2	61.2	61.2

NOTE- [ ] DIMENSION ARE INCHES

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DIMENSIONAL DATA: VAN DIMENSONAL CHART (METRIC)

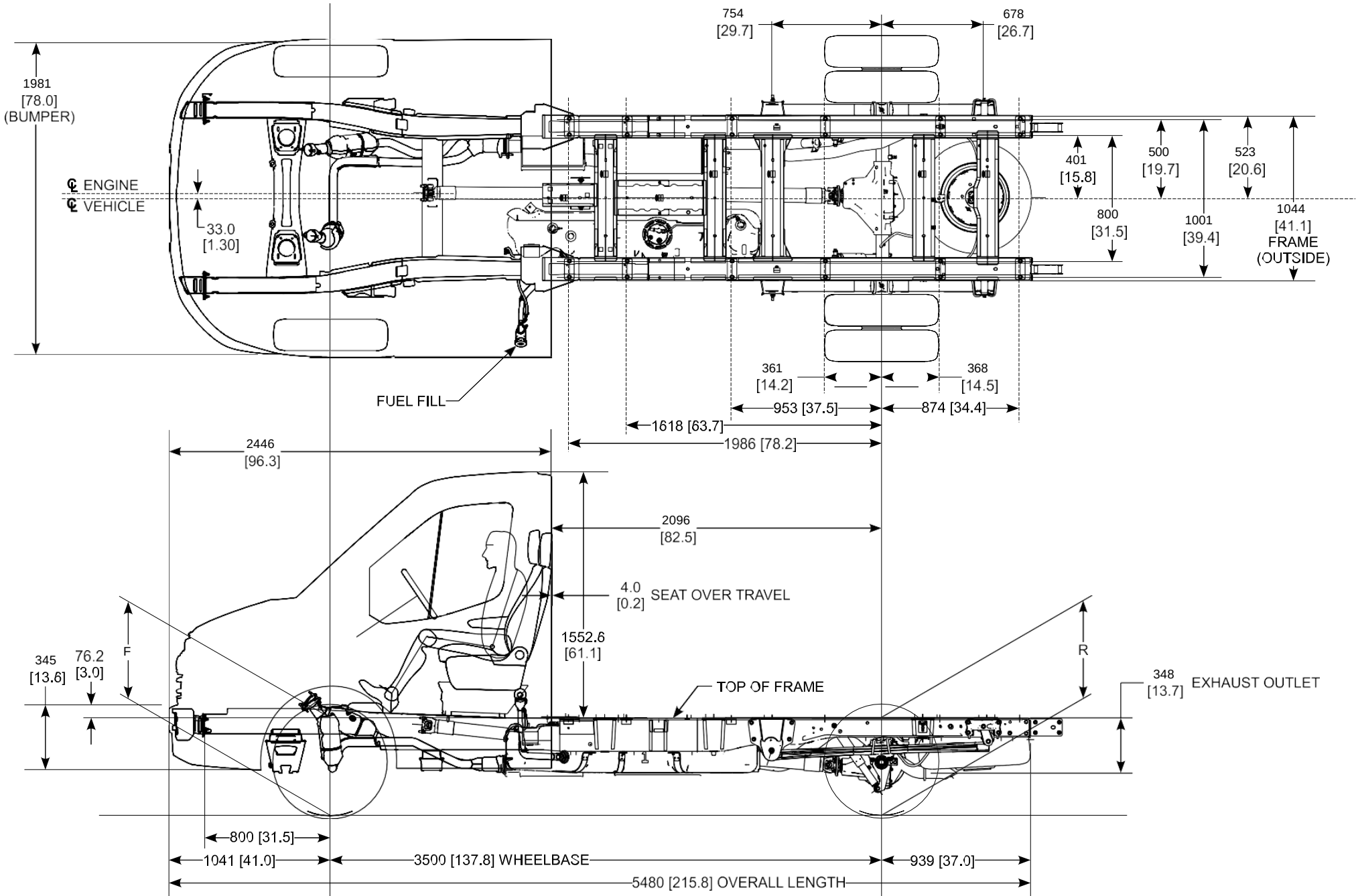
	Wheelbase (Medium, Long, Ext. Length)	Medium	Medium	Medium	Medium	Medium	Medium	Long	Long	Long	Long	Long	Long	Long	Long	Long	Ext. Length	Ext. Length	Medium	Medium	Long	Long	Long	Ext. Length
	Passenger (Pass.) / Cargo Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Pass. Van	Cargo Van	Cargo Van	Cargo Van	Cargo Van	Cargo Van	Cargo Van
	Roof (Low , Medium, High)	Low	Medium	Low	Low	Medium	Medium	Low	Medium	High	Low	Low	Medium	Medium	High	High	High	High	Low	Medium	Low	Medium	High	High
	Passenger Capacity (2, 5, 8, 10, 12, 15)	2	2	8	10	8	10	2	2	2	12	15	12	15	12	15	2	15	2	2	2	2	2	2
	Rows of Seating	1	1	3 (2-3-3)	4 (2-2-3-3)	3 (2-3-3)	4 (2-2-3-3)	1	1	1	4 (2-3-3-4)	5 (2-3-3-3-4)	4 (2-3-3-4)	5 (2-3-3-3-4)	4 (2-3-3-4)	5 (2-3-3-3-4)	1	5 (2-3-3-3-4)	1	1	1	1	1	1
Dim Code	**EXTERIOR**																							
L101	Wheelbase [mm]	3300	3300	3300	3300	3300	3300	3750	3750	3750	3750	3750	3750	3750	3750	3750	3750	3750	3300	3300	3750	3750	3750	3750
L103	Length [mm]	5585	5531	5585	5585	5531	5531	6035	5981	5981	6035	6035	5981	5981	5981	5981	6704	6704	5585	5531	6035	5981	5981	6704
L103	Length w ith optional extended bumper [mm]	-	5585	-	-	5585	5585	-	6035	6035	-	-	6035	6035	6035	6035	6758	6758	-	5585	-	6035	6035	6758
H101C	Height [mm]	2090.5	2510.5	2089	2089	2506	2506	2105	2534.9	2784.5	2092	2092	2520	2520	2759	2759	2778	2736	2088	2518	2105	2574	2785	2803
W103	Width - Excluding Mirrors [mm]	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066 / 2126
W410	Width - Including Mirrors [mm]	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474	2474
W411	Width - Mirrors Folded [mm]	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114	2114
W101C	Front Track [mm]	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732	1732 / 1740
W102C	Rear Track [mm]	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743	1743 / 1670
L104	Front Overhang [mm]	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023	1023
L105	Rear Overhang [mm]	1262	1208	1262	1262	1208	1208	1262	1208	1208	1262	1262	1208	1208	1208	1208	1931	1931	1262	1208	1262	1208	1208	1931
L105	Rr Overhang with optional ext'd bumper [mm]	-	1262	-	-	1262	1262	-	1262	1262	-	-	1262	1262	1262	1262	1985	1985	-	1262	-	1262	1262	1985
H196	Load Height (Curb) [mm]	717	717	717	717	717	717	731	731	731	731	731	731	731	731	731	707	707	733	733	730	730	730	712
H508	Side Cargo Door Opening Height [mm]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1260	1601	1260	1601	1601	1601
L508	Side Cargo Door Opening Width - Hinged [mm]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1300	1300	1300	1300	1300	1300
L508	Side Cargo Door Opening Width - Sliding [mm]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1300	1300	1300	1300	1300	1300
H202	Rear Cargo Door Opening Height [mm]	1192	1595	1192	1192	1595	1595	1192	1595	1834	1192	1192	1595	1595	1834	1834	1834	1834	1258	1648	1258	1648	1887	1887
W203	Rear Cargo Door Opening Width [mm]	1520	1520	1520	1520	1520	1520	1520	1520	1520	1520	1520	1520	1520	1520	1520	1520	1520	1568	1568	1568	1568	1568	1568
Dim Code	**INTERIOR**																							
H61	Head Room - First Row [mm]	1037	1320	1037	1037	1320	1320	1037	1320	1437	1037	1037	1320	1320	1437	1437	1437	1437	1037	1320	1037	1320	1437	1437
H63	Head Room - Second Row [mm]	-	-	1045	1045	1417	1417	-	-	-	1045	1045	1417	1417	1656	1656	-	1656	-	-	-	-	-	-
H86	Head Room - Third Row [mm]	-	-	1032	1032	1417	1417	-	-	-	1032	1032	1417	1417	1657	1657	-	1657	-	-	-	-	-	-
H86-4th	Head Room - Fourth Row [mm]	-	-	-	983	-	1417	-	-	-	983	983	1417	1417	1657	1657	-	1657	-	-	-	-	-	-
H86-5th	Head Room - Fifth Row [mm]	-	-	-	-	-	-	-	-	-	-	969	-	1336	-	1557	-	1557	-	-	-	-	-	-
L33	Maximum Leg Room - First Row [mm]	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050
L34	Leg Room - First Row [mm]	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009
L51	Leg Room - Second Row [mm]	-	-	855	855	855	855	-	-	-	855	855	855	855	855	855	-	855	-	-	-	-	-	-
L86	Leg Room - Third Row [mm]	-	-	903	903	903	903	-	-	-	903	903	903	903	903	903	-	903	-	-	-	-	-	-
L86-4th	Leg Room - Fourth Row [mm]	-	-	-	903	-	903	-	-	-	903	903	903	903	903	903	-	903	-	-	-	-	-	-
L86-5th	Leg Room - Fifth Row [mm]	-	-	-	-	-	-	-	-	-	-	903	-	903	-	903	-	903	-	-	-	-	-	-
W5	Hip Room - First Row [mm]	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543
W6	Hip Room - Second Row [mm]	-	-	1767	1767	1767	1767	-	-	-	1767	1767	1767	1767	1767	1767	-	1767	-	-	-	-	-	-
W86	Hip Room - Third Row [mm]	-	-	1709	1709	1709	1709	-	-	-	1709	1709	1709	1709	1709	1709	-	1709	-	-	-	-	-	-
W86-4th	Hip Room - Fourth Row [mm]	-	-	-	1728	-	1728	-	-	-	1728	1728	1728	1728	1728	1728	-	1728	-	-	-	-	-	-
W86-5th	Hip Room - Fifth Row [mm]	-	-	-	-	-	-	-	-	-	-	1728	-	1728	-	1728	-	1728	-	-	-	-	-	-
W3	Shoulder Room - First Row [mm]	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724	1724
W4	Shoulder Room - Second Row [mm]	-	-	1813	1813	1813	1813	-	-	-	1813	1813	1813	1813	1813	1813	-	1813	-	-	-	-	-	-
W85	Shoulder Room - Third Row [mm]	-	-	1703	1703	1703	1703	-	-	-	1703	1703	1703	1703	1703	1703	-	1703	-	-	-	-	-	-
W85-4th	Shoulder Room - Fourth Row [mm]	-	-	-	1722	-	1722	-	-	-	1722	1722	1722	1722	1722	1722	-	1722	-	-	-	-	-	-
W85-5th	Shoulder Room - Fifth Row [mm]	-	-	-	-	-	-	-	-	-	-	1722	-	1722	-	1722	-	1722	-	-	-	-	-	-
L202	Cargo Length Front (at Floor) [mm]	3150	3150	3150	3150	3150	3150	3600	3600	3600	3600	3600	3600	3600	3600	3600	4323	4323	3200	3200	3650	3650	3650	4373
L204	Cargo Length Front (at Belt) [mm]	2924	2924	2924	2924	2924	2924	3374	3374	3374	3374	3374	3374	3374	3374	3374	4097	4097	2943	2943	3393	3393	3393	4116
W201	Cargo Width Betw een Wheelhouse [mm]	1364	1364	1364	1364	1364	1364	1364	1364	1364	1364	1364	1364	1364	1364	1364	1364	1364	1392	1392	1392	1392	1392	1392 / 1154
H505	Cargo Height Maximum [mm]	1340	1718	1340	1340	1718	1718	1340	1718	1956	1340	1340	1718	1718	1956	1956	1956	1956	1446	1830	1446	1830	2069	2069
Dim Code	**CARGO CAPACITY**																							
V6	Cargo Volume Behind First Row (Van)	6357.1	8288.3	6356	6357.1	8288.1	8288.3	7260.4	9517.3	10834	7260.4	6328.8	9517.3	8582.8	10834	9899.6	13079.6	12046	6984.6	8925.9	7862.6	10110.6	11447.1	13797.3
V7	Cargo Volume Behind Second Row (Van)	-	-	4298.4	4298.5	5605	5603.9	-	-	-	5182	4247.5	6790.4	5855.9	7730.5	6798.9	-	8866	-	-	-	-	-	-
V9	Cargo Volume Behind Third Row (Van)	-	-	2668	2667.4	3539.5	3539.6	-	-	-	3525.4	2591	4726.1	3791.6	5380.2	4445.7	-	6512.9	-	-	-	-	-	-
V12	Cargo Volume Behind Fourth Row (Van)	-	-	-	-	-	-	-	-	-	1985	1384.7	2658.9	2061.5	3029.9	2429.6	-	5210.3	-	-	-	-	-	-
V13	Cargo Volume Behind Fifth Row (Van)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2845.8	-	-	-	-	-	-
V14	Cargo Volume - Max (Van)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8071.5	10301.4	8949.5	11486.1	13002.3	15352.5
V15	Cargo Volume - Front Seat (Van)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1086.9	1375.5	1086.9	1375.5	1555.2	1555.2

NOTE- [ ] DIMENSION ARE INCHES

Body Builders Layout Book

TRANSIT

DIMENSIONAL DATA: CHASSIS CAB/CUTAWAY (138” WB)



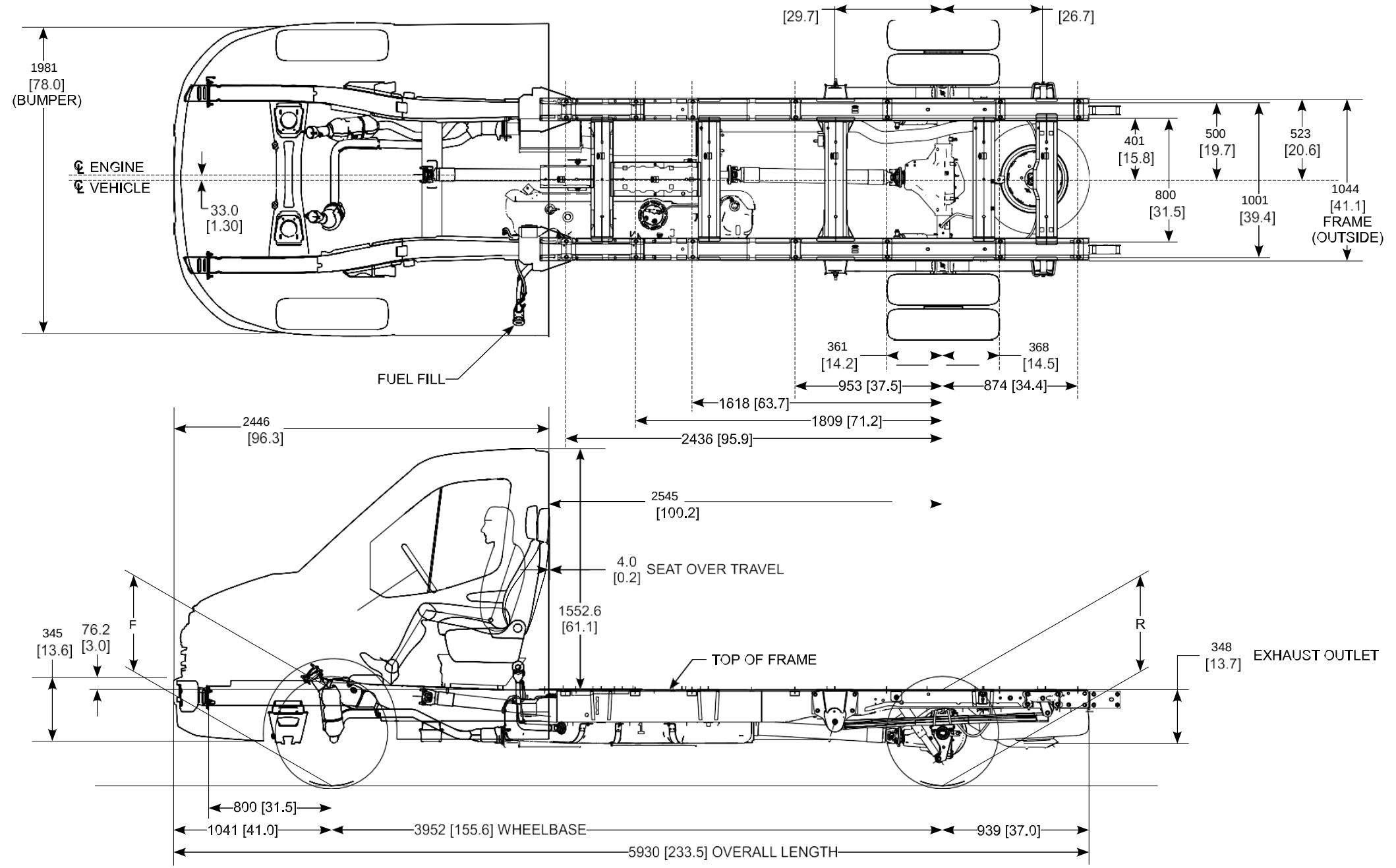
NOTE- [ ] DIMENSION ARE INCHES

Ford PRO

Body Builders Layout Book

TRANSIT

DIMENSIONAL DATA: CHASSIS CAB/CUTAWAY (156” WB)



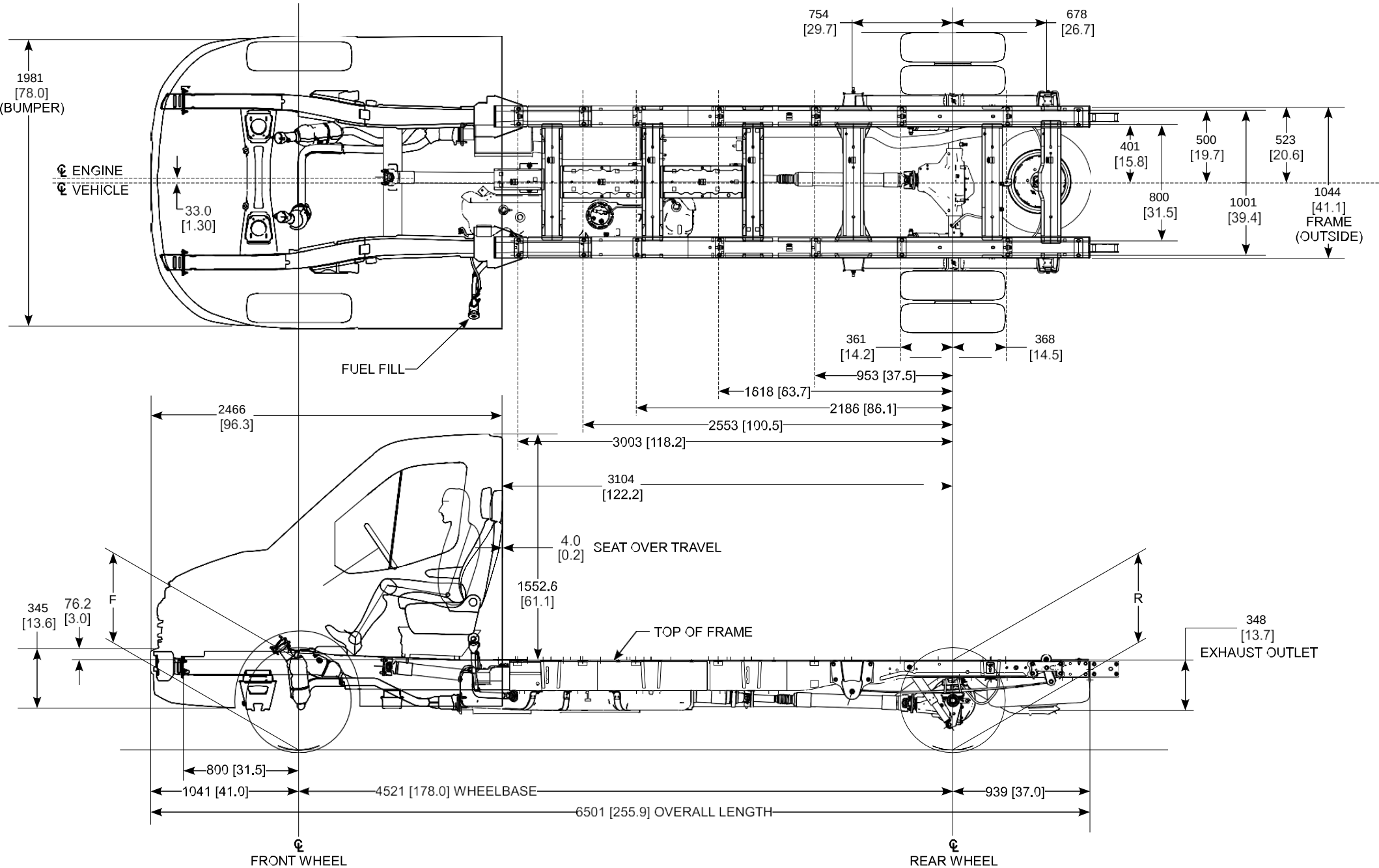
NOTE- [ ] DIMENSION ARE INCHES

Ford PRO

Body Builders Layout Book

TRANSIT

DIMENSIONAL DATA: CHASSIS CAB/CUTAWAY (178” WB)



NOTE- [ ] DIMENSION ARE INCHES

Body Builders Layout Book

TRANSIT

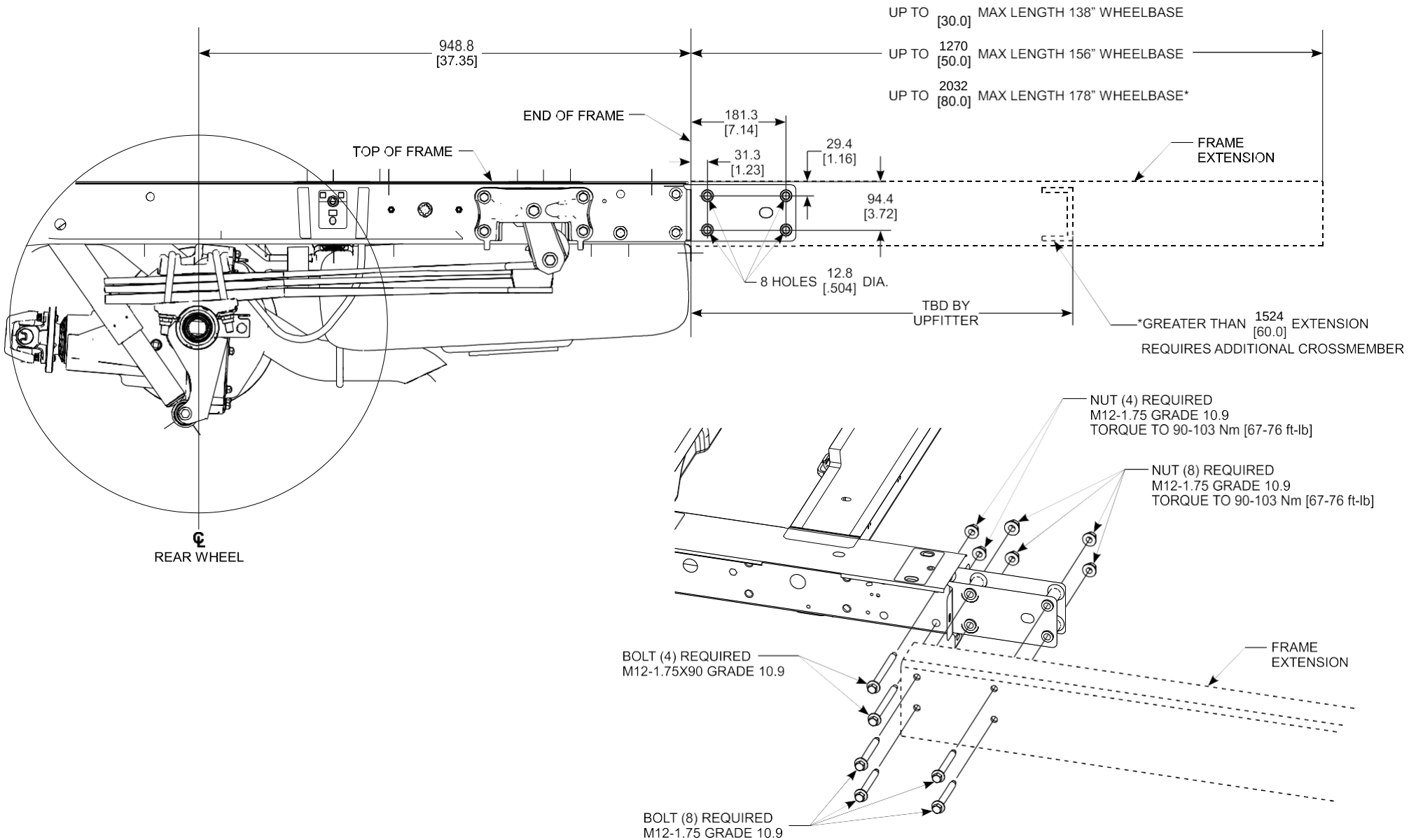
DIMENSIONAL DATA: CHASSIS CAB/CUTAWAY DIMENSONAL CHART

		REGULAR			LONG				JUMBO	
		T250	T350 HD	T350HD	T250	T350	T350HD	T350HD	T350HD	T350HD
CHASSIS CAB/CUTAWAY	**CODE**	SRW	DRW	DRW	SRW	SRW	DRW	DRW	DRW	DRW
WHEELBASE	**L101**	3504 [138]	3504 [138]	3504 [138]	3954 [155.7]	3954 [155.7]	3954 [155.7]	3954 [155.7]	4522 [178]	4522 [178]
OVERALL LENGTH	**L103**	5673 [223.3]	5673 [223.3]	5673 [223.3]	6123 [241.1]	6123 [241.1]	6123 [241.1]	6123 [241.1]	6691 [263.4]	6691 [263.4]
FRONT TRACK	**W101C**	1732 [68.2]	1740 [68.5]	1740 [68.5]	1732 [68.2]	1732 [68.2]	1740 [68.5]	1740 [68.5]	1740 [68.5]	1740 [68.5]
REAR TRACK	**W102C**	1743 [68.6]	1670 [65.7]	1670 [65.7]	1743 [68.6]	1743 [68.6]	1670 [65.7]	1670 [65.7]	1670 [65.7]	1670 [65.7]
REAR AXLE TO END OF FRAME (REAR OVERHANG)	**N/A**	1146 [45.1]	1146 [45.1]	1146 [45.1]	1146 [45.1]	1146 [45.1]	1146 [45.1]	1146 [45.1]	1146 [45.1]	1146 [45.1]
LOAD HEIGHT (LOADED)	**R**	634 [25]	627 [24.7]	616 [24.3]	656 [25.8]	645 [25.4]	649 [25.6]	643 [25.3]	633 [24.9]	624 [24.6]
HEIGHT AT TOP OF STEERING WHEEL (LOADED)	**N/A**	1537 [60.5]	1513 [59.6]	139 [5.5]	1529 [60.2]	1526 [60.1]	1503 [59.2]	1500 [59.1]	1523 [60]	1521 [59.9]
REAR AXLE CLEARANCE (LOADED)	**N/A**	141 [5.6]	140 [5.5]	139 [5.5]	155 [6.1]	151 [5.9]	1545 [60.8]	153 [6]	150 [5.9]	153 [6]

NOTE- [ ] DIMENSION ARE INCHES

TRANSIT

DIMENSIONAL DATA: REAR FRAME EXTENSION (CHASSIS CAB & CUTAWAY)



NOTE- [ ] DIMENSION ARE INCHES

TRANSIT

DIMENSIONAL DATA: CENTER OF GRAVITY REFERENCE DATA

PASSENGER LOAD [1]	
GVWR	P (kg [lb])
10,000 LB AND BELOW	181 [400]
OVER 10,000 LB	227 [500]

PASSENGER LOAD CGLOCATION		
CONFIGURATION	CG_{vp} [2] (mm [in])	CG_{hp} [3] (mm [in])
ALL TRANSIT	1059 [41.7]	1031 [40.6]

CHASSIS VERTICAL CG LOCATION [4] VAN			
ROOF HEIGHT	AXLE	ENGINE	CG_{vc} [5] (mm [in])
LOW	SRW	3.5L PFDI	785 [30.9]
		3.5L ECOBOOST	792 [31.2]
		BEV	701 [27.6]
	DRW	3.5L PFDI	787 [31.0]
		3.5L ECOBOOST	795 [31.3]
MED	SRW	3.5L PFDI	836 [32.9]
		3.5L ECOBOOST	843 [33.2]
		BEV	752 [29.6]
	DRW	3.5L PFDI	838 [33.0]
		3.5L ECOBOOST	846 [33.3]
HIGH	SRW	3.5L	876 [34.5]
		3.5L ECOBOOST	884 [34.8]
		BEV	792 [31.2]
	DRW	3.5L PFDI	879 [34.6]
		3.5L ECOBOOST	886 [34.9]

CHASSIS VERTICAL CG LOCATION [4] CUTAWAY / CHASSIS CAB			
WB (IN)	AXLE	ENGINE	CG_{vc} [5] (mm [in])
138	SRW	3.5L PFDI	706 [27.8]
		3.5L ECOBOOST	714 [28.1]
	DRW	3.5L PFDI	716 [28.2]
		3.5L ECOBOOST	724 [28.5]
156	SRW	3.5L PFDI	673 [26.5]
		3.5L ECOBOOST	681 [26.8]
	DRW	3.5L PFDI	683 [26.9]
		3.5L ECOBOOST	691 [27.2]
178	SRW	3.5L PFDI	663 [26.1]
		3.5L ECOBOOST	671 [26.4]
		BEV	579 [22.8]
	DRW	3.5L PFDI	673 [26.5]
		3.5L ECOBOOST	681 [26.8]

NOTES:

1. P – Passenger Load as defined in FMVSS 105
2. CG_{vp} – Vertical CG location of Passenger Load as measured from the Ground
3. CG_{hp} – Horizontal CG location of Passenger Load as measured from the Center of the Front Wheel
4. Values are calculated based on physical measurements from a sample of chassis. All values should be considered estimates, if the calculated CG values for the completed vehicle are close to limits stated in the applicable IVM, Ford recommends verification of CG by physical measurement of a completed vehicle.
5. CG_{vc} – Vertical CG location of Chassis as measured from the Ground

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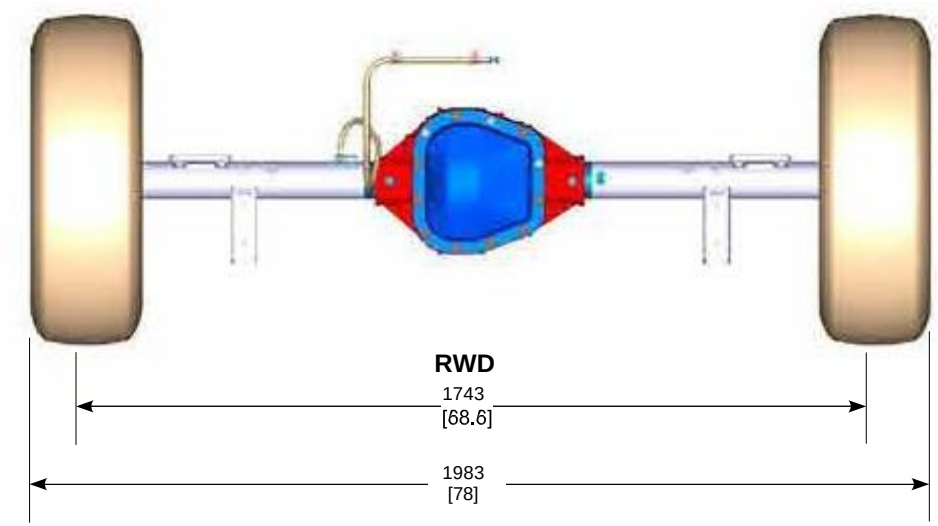
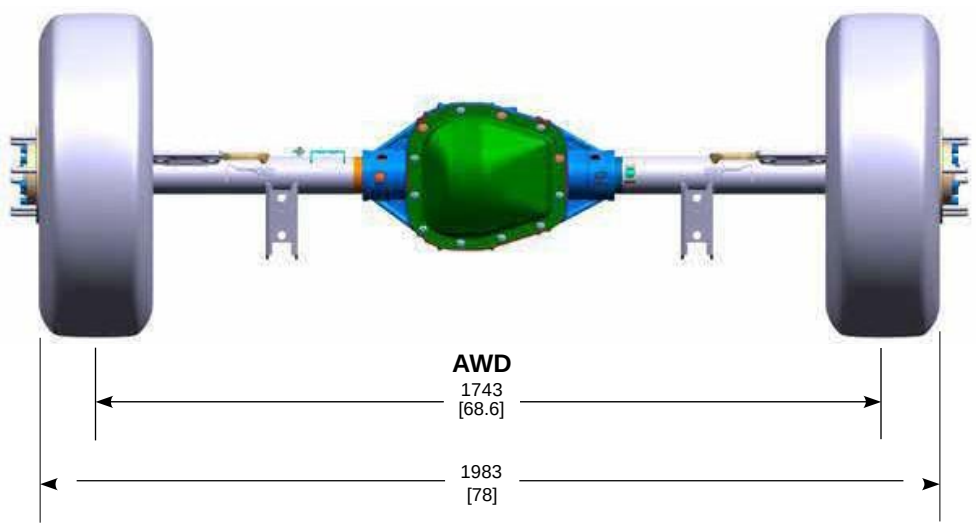
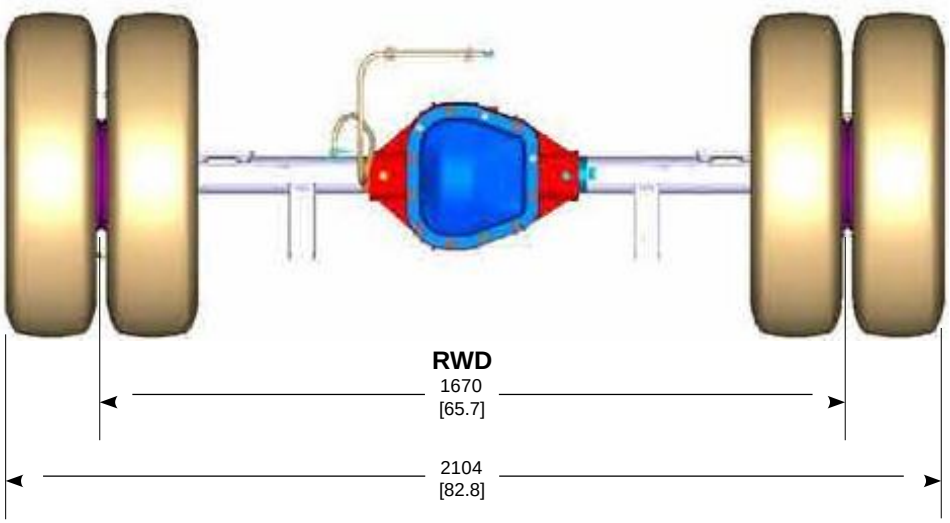
Body Builders Layout Book

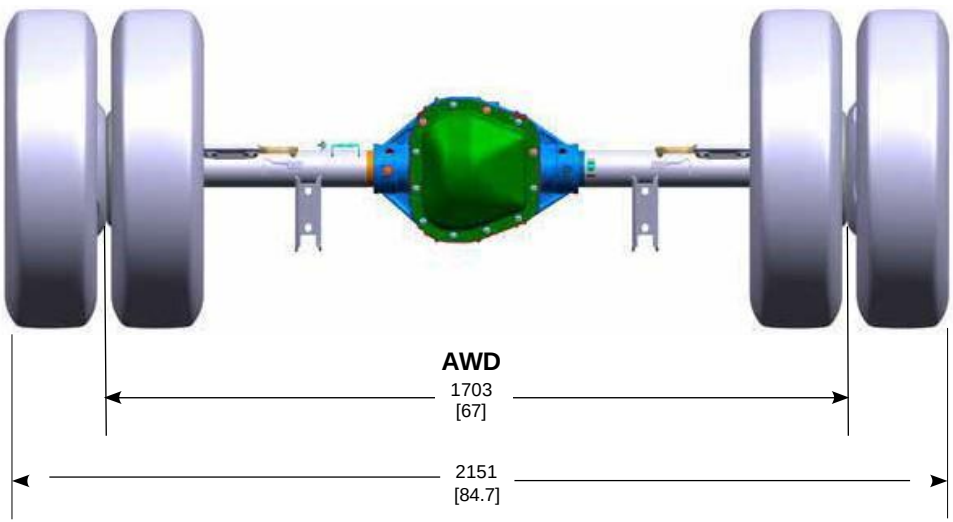
TRANSIT

DIMENSIONAL DATA: REAR AXLE TRACK DIMENSIONS (SRW & DRW)





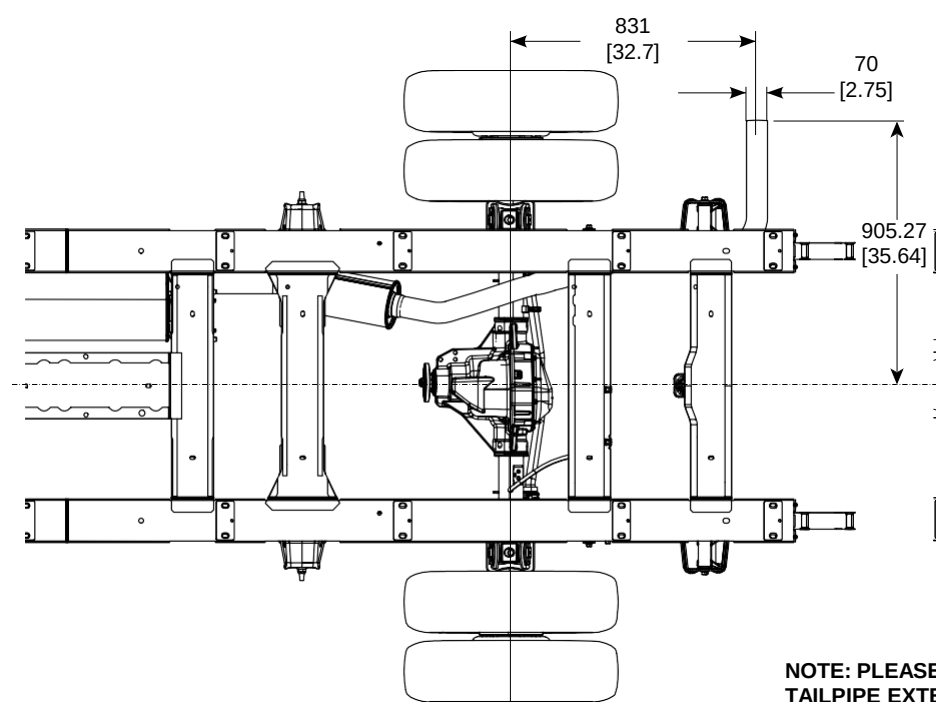


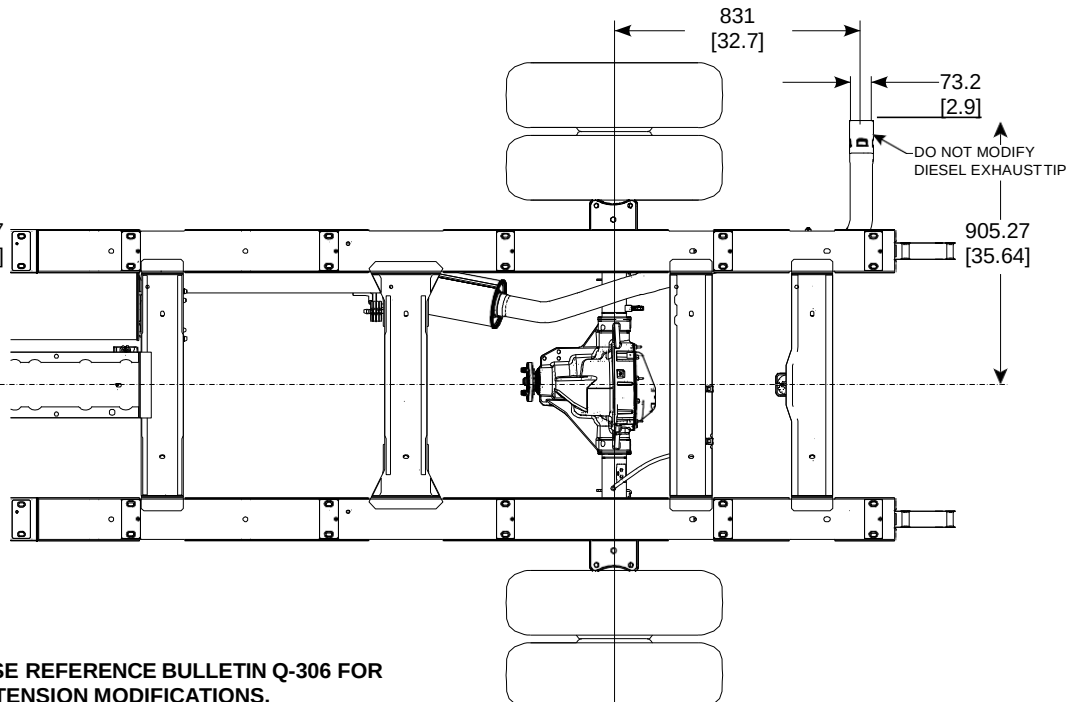


NOTE- [ ] DIMENSION ARE INCHES

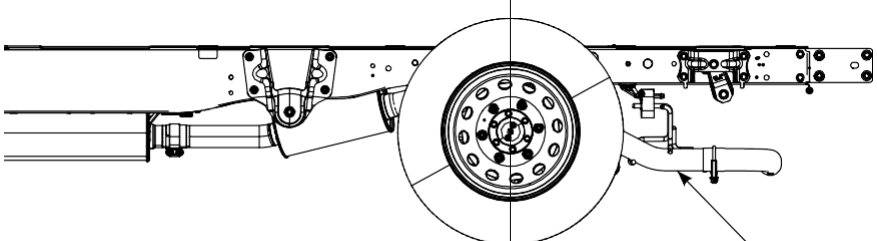
TRANSIT

DIMENSIONAL DATA: EXHAUST EXTENSION KIT (CHASSIS CAB & CUTAWAY)

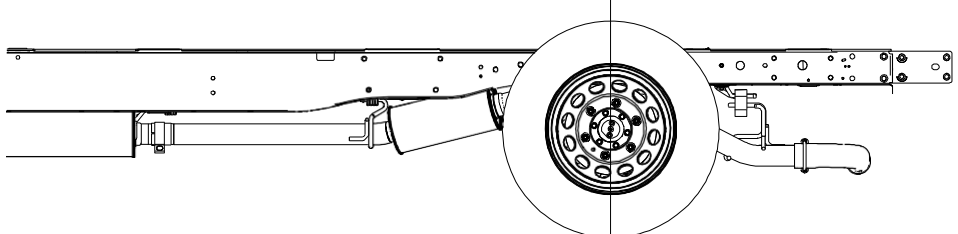




NOTE: PLEASE REFERENCE BULLETIN Q-306 FOR TAILPIPE EXTENSION MODIFICATIONS.



NOTE: SIDE EXIT EXHAUST PIPE PROVIDED WITH VEHICLE MUST BE INSTALLED BY UPFITTER



TRANSIT EXTENDED EXHAUST
GASOLINE ENGINE
ALL WB CHASSIS CAB /CUTAWAY

TRANSIT EXTENDED EXHAUST
DIESEL ENGINE
ALL WB CHASSIS CAB / CUTAWAY

NOTE- [ ] DIMENSION ARE INCHES

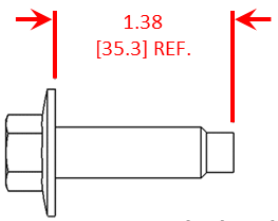
TRANSIT

DESIGN / RECOMMENDATION: SECOND UNIT MOUNTING (GAS & BEV)

TRANSIT SECOND UNIT BODY (SUB)
Refer to the Transit Incomplete Vehicle Manual (IVM) and the Transit Body and Equipment Mounting Manual (BEMM), Body Section, 5.1.6 Chassis Cab / Cutaway at https://www.fordpro.com/en-us/upfit/publications/ for additional SUB mounting information for both GAS and BEV Model variants.

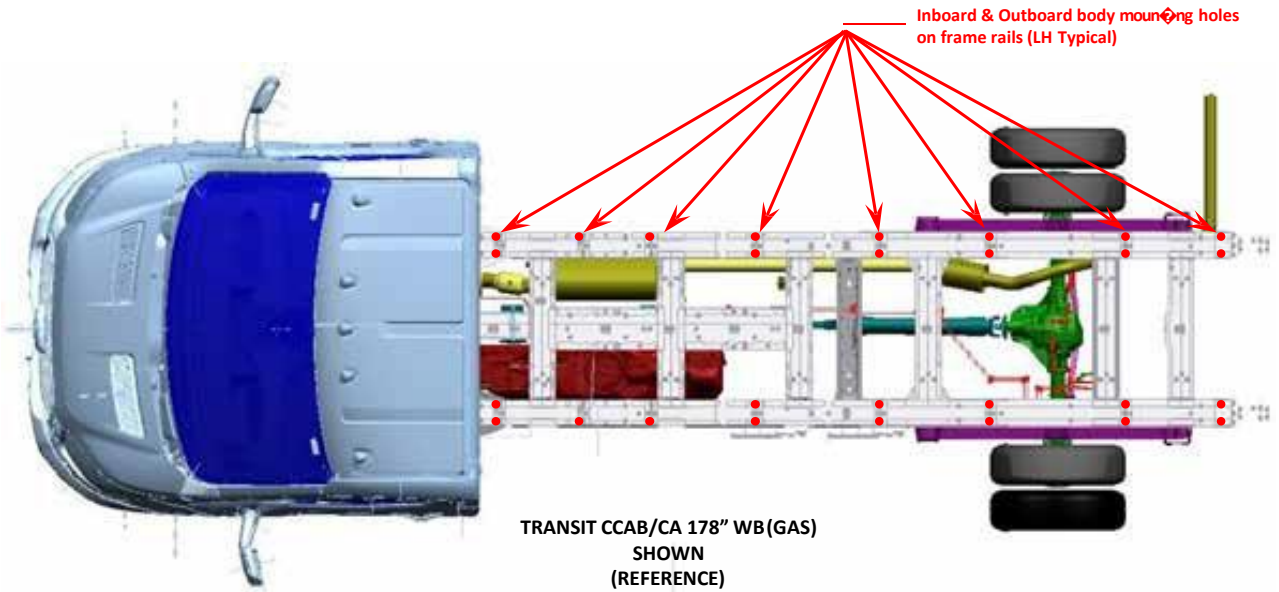
- A full-length structural body should be hard-mounted to all available inboard and outboard frame hole locations; however, fasteners are not required in 2nd and 3rd rows of LH and RH frame rail inboard holes alongside the battery, fuel tank and exhaust muffler. Ford Motor Company recommends 25 mm head-size flange M10 Grade 10.9 W520113-S442 nuts & W703776-S442 bolts, or equivalent. Reference BEMM Body Section, 5.1.6 Chassis Cab / Cutaway.

W520113-S442 Nut (REF.)

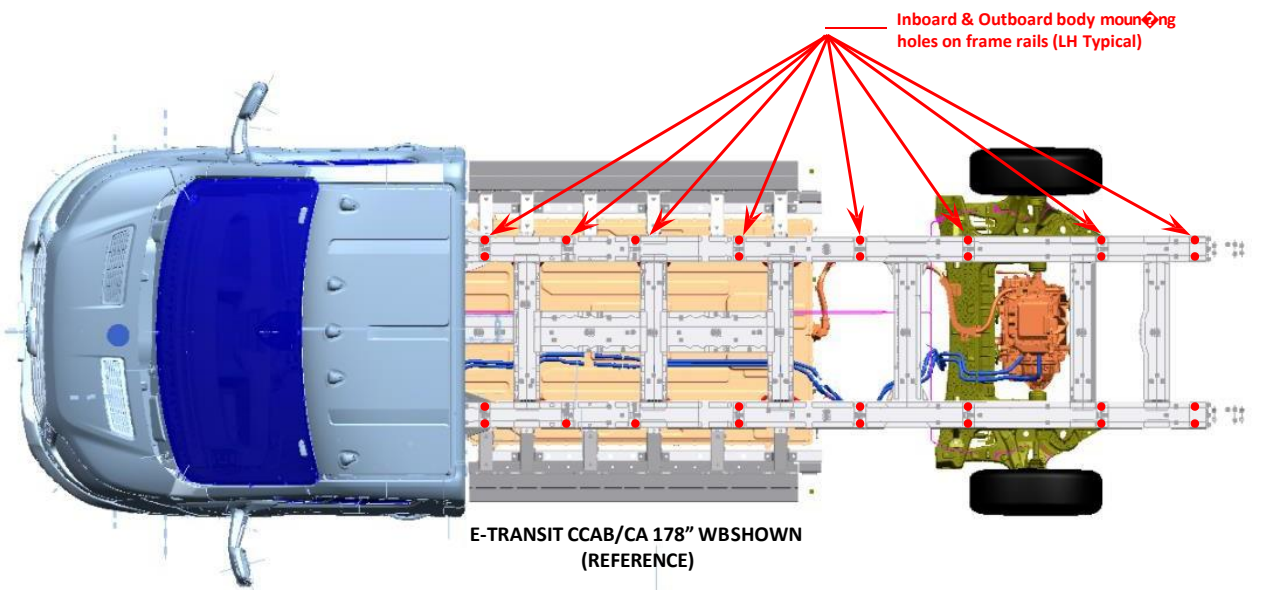


W703776-S442 Bolts (REF.)

- **DO NOT WELD** to the flanges of the side rails.
- The recommended attachment fastener for the Cutaway Back-of-Cab non-threaded nutplates is a MR8 Taptite 2000® bolt or equivalent. Reference Transit BEMM Body Section, 5.1.7 Cutaways.
- NOTE: The requirement for a Cutaway floor spacer between the cab and an attached body. Reference: BEMM Body Section, 5.1.7 Cutaway – Floor Spacer.
- **NOTE: BEV Chassis Cab vehicles with a Platform or Stake style Second Unit Body may exhibit a Low Frequency Ride Comfort Characteristics that does not meet customer expectations. When upfitting a vehicle with either of these Second Unit Bodies, Ford Motor Company recommends installation of a Tuned Mass Damper Part: NK31-110867-AA* be ordered and installed prior to delivery to end/final customer. Reference the following page for image and location.**



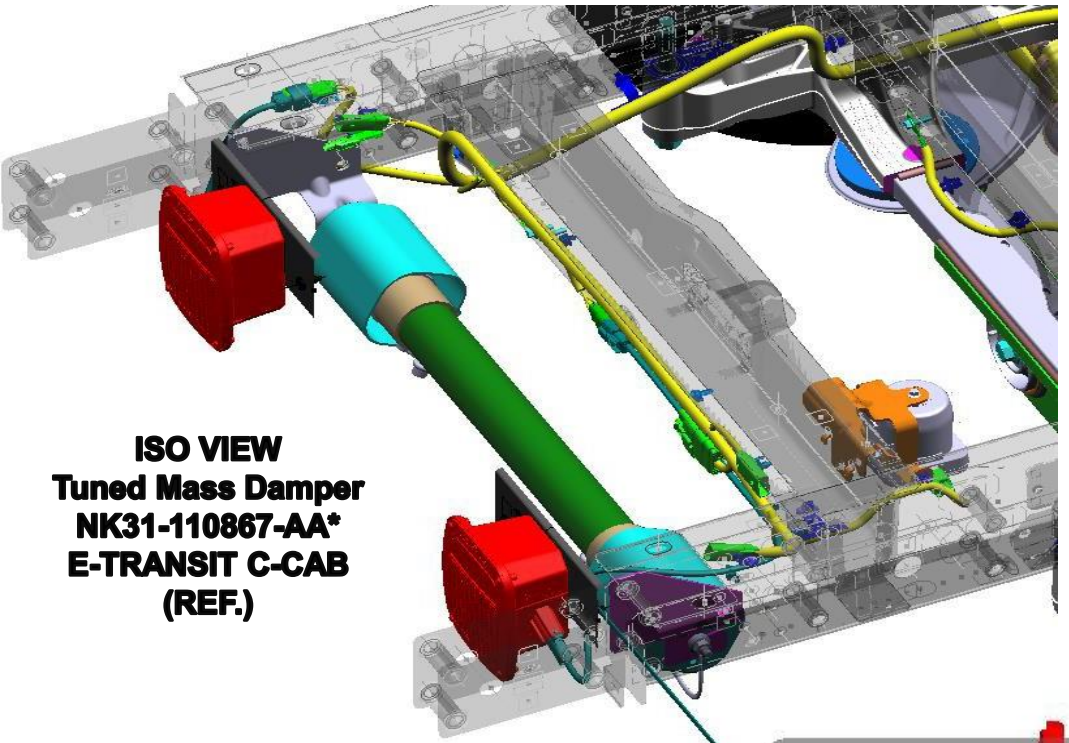
TRANSIT CCAB/CA 178" WB (GAS)
SHOWN
(REFERENCE)



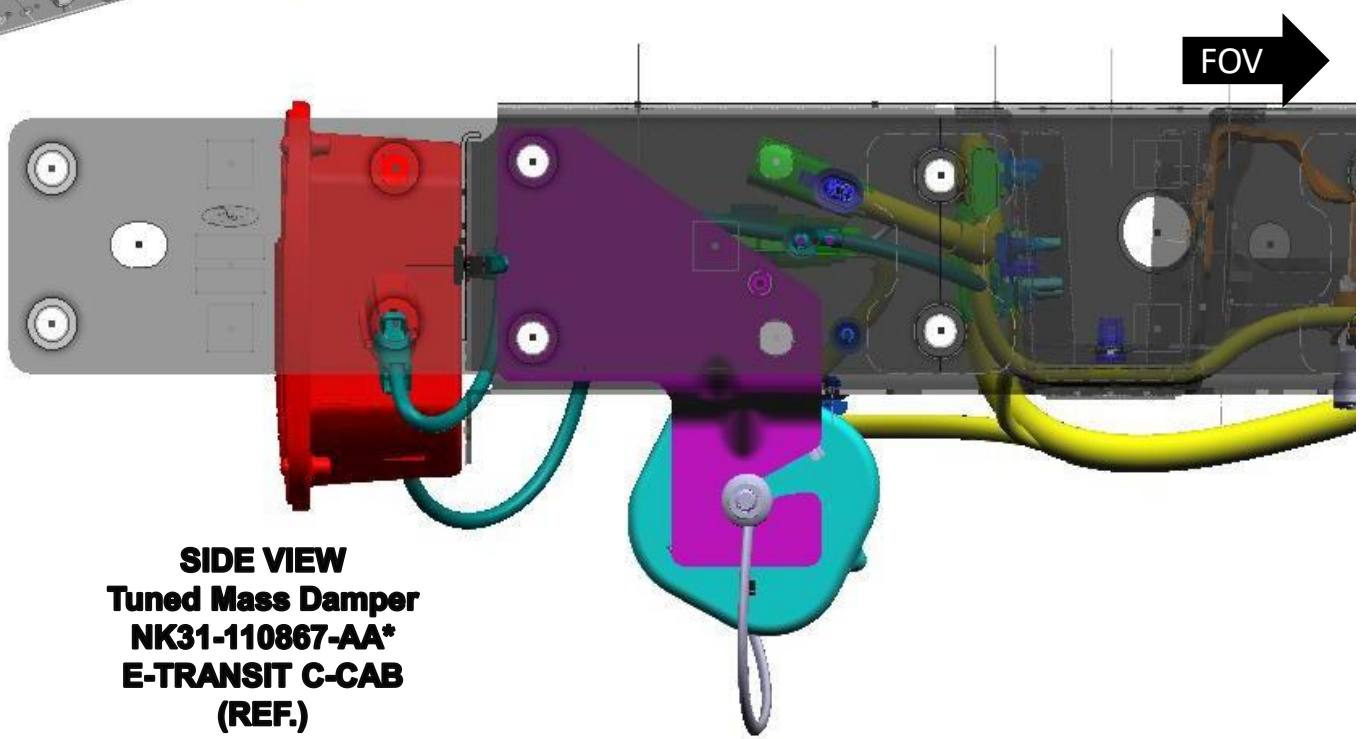
E-TRANSIT CCAB/CA 178" WBSHOWN
(REFERENCE)

TRANSIT

DESIGN / RECOMMENDATION: SECOND UNIT MOUNTING (GAS & BEV)



ISO VIEW
Tuned Mass Damper
NK31-110867-AA*
E-TRANSIT C-CAB
(REF.)



SIDE VIEW
Tuned Mass Damper
NK31-110867-AA*
E-TRANSIT C-CAB
(REF.)

TRANSIT

DESIGN / RECOMMENDATION: PRECAUTIONARY DRILL ZONES GUIDANCE (E-TRANSIT)

E-TRANSIT VAN PRECAUTIONARY DRILL ZONES

Refer to the Transit Incomplete Vehicle Manual (IVM) and the Transit Body and Equipment Mounting Manual (BEMM), Powertrain Section, for further precautionary details https://www.fordpro.com/en-us/upfit/publications/ for GAS and Battery Electric Vehicle (BEV) Model variants.

THIS GUIDANCE ONLY APPLIES TO THE E-TRANSIT BEV.

It is **STRONGLY** recommended that E-Transit VAN CAD is obtained for upfitter use to understand vehicle component placement/location of Hi/Low-Voltage Wire harness routing, coolant line wiring, hydraulic brake line routing, rear drive unit placement, etc. CAD can be obtained from Ford Body Builder Advisory Service by submitting a helpdesk ticket, https://www.fordpro.com/en-us/upfit/cad/

Take precautions when undertaking drilling, or any other operation, aft of B-Pillar in order to prevent damage to any components under the Van floor.

HV grounding points in the vehicle are not to be touched.

When adding holes/fasteners to the floor of the vehicle to secure upfits, consideration must be given to all components below the floor.

- It is strongly recommended that drill-depth stop be used.
- Drill stop depth shall not exceed 1.0 [25.4] MAXIMUM DEPTH
- Fasteners (including PlusNut® or equivalent) extending below the floor of the vehicle shall not exceed 1.0 [25.4] MAXIMUM DEPTH (Figure A)
- Fasteners (and/or alternative fastening method) extending below the floor of the vehicle shall have 2.0 [50.8] MINIMUM CLEARANCE to any surrounding Hi/Low-Voltage wiring and/or coolant line routing and/or hydraulic brake line routing to prevent any damage/chaffing. (Figure B)

NOTE:

- Re-paint metal edges after cutting or drilling. All metal edges must comply with exterior and interior protection legislation.
- All fixings through the floor, sides or roof must be sealed. (Refer BEMM sections 5.1.1 Body Structures and 5.1.3 Corrosion Prevention)

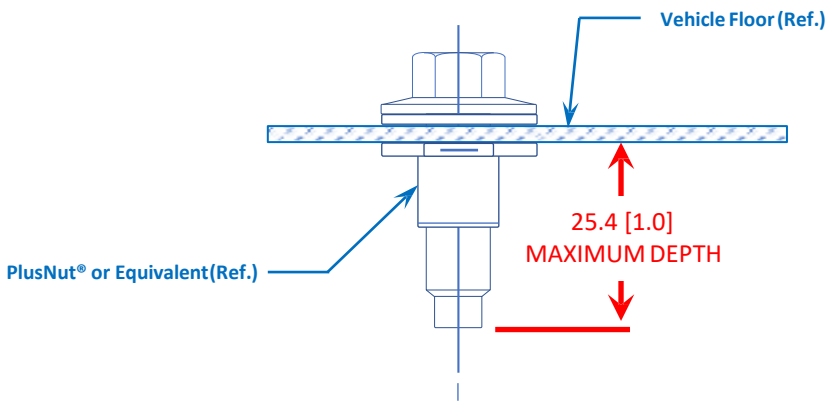


Figure A

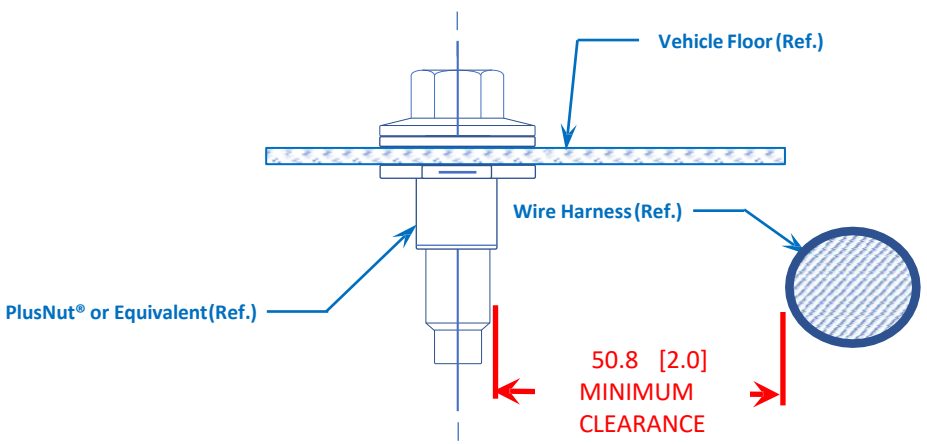


Figure B

TRANSIT

DESIGN / RECOMMENDATION: HIGH VOLTAGE BATTERY VEHICLE VENTING (E-TRANSIT)

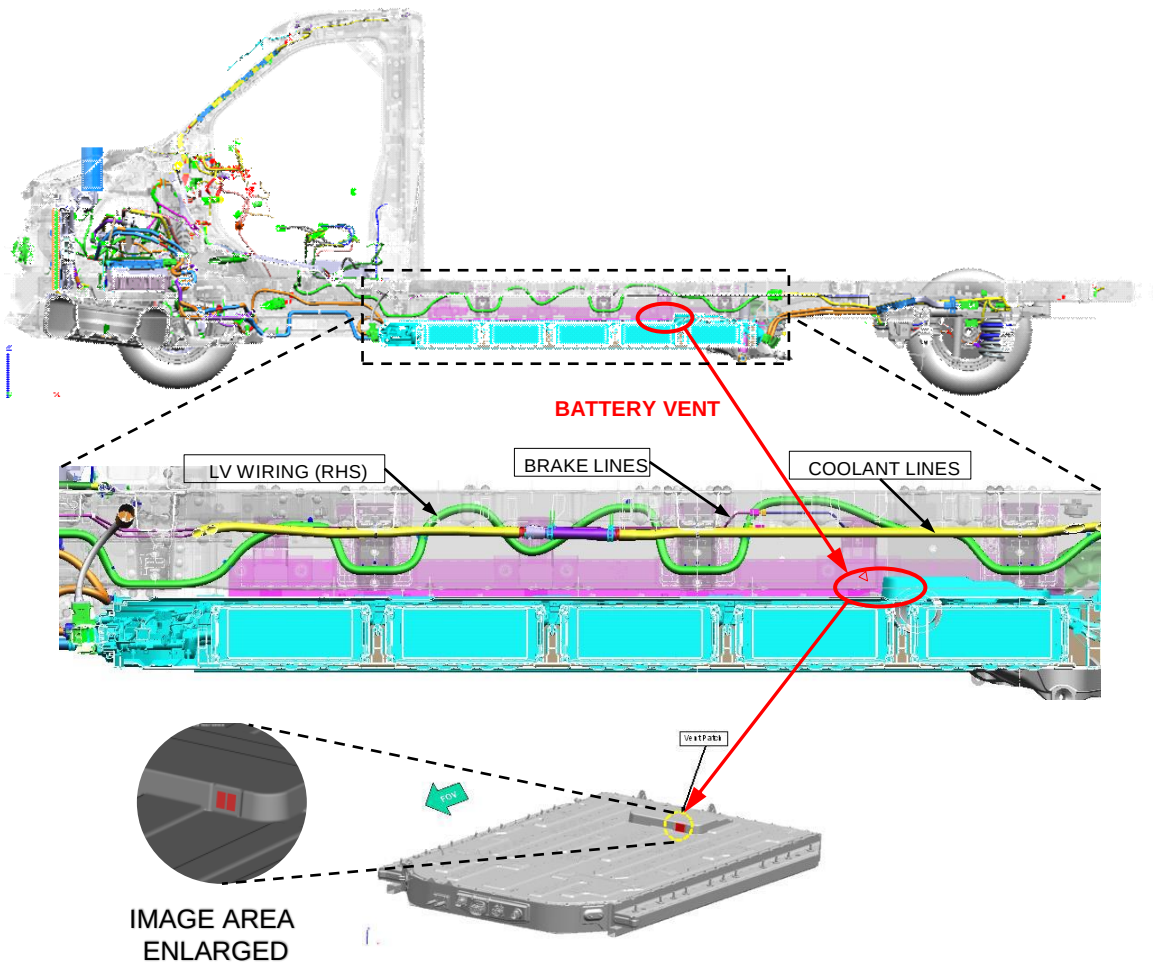
HIGH VOLTAGE BATTERY VEHICLE VENTING

If the HV Battery is equipped with pressure equalization patches, pressure relief ports, and/or exhaust vent ducts, no additional components nor obstructions (beyond any installed by Ford) shall be located in the same environment as the battery (e.g., underbody), and within 150 mm of these features. Additionally, no components which may contain combustible liquids or gasses at any time shall be added by the upfitter within 300 mm of these features.

There shall be no modifications or installed components which confine the air space near the outside of the HV Battery or obstruct the free flow of air about the battery (beyond any installed by Ford).

Any cut outs or openings created between the occupant space and the vehicle underbody shall be sealed such that air is not free to pass from under the vehicle into the occupant space.

If any primary ingress/egress paths for occupant spaces are located above or rearward of the rear axle(s), a metallic shielding shall be added to obstruct any air flow from the battery towards those ingress/egress paths and redirect that air flow towards a side/rear area that is not a primary ingress/egress path.

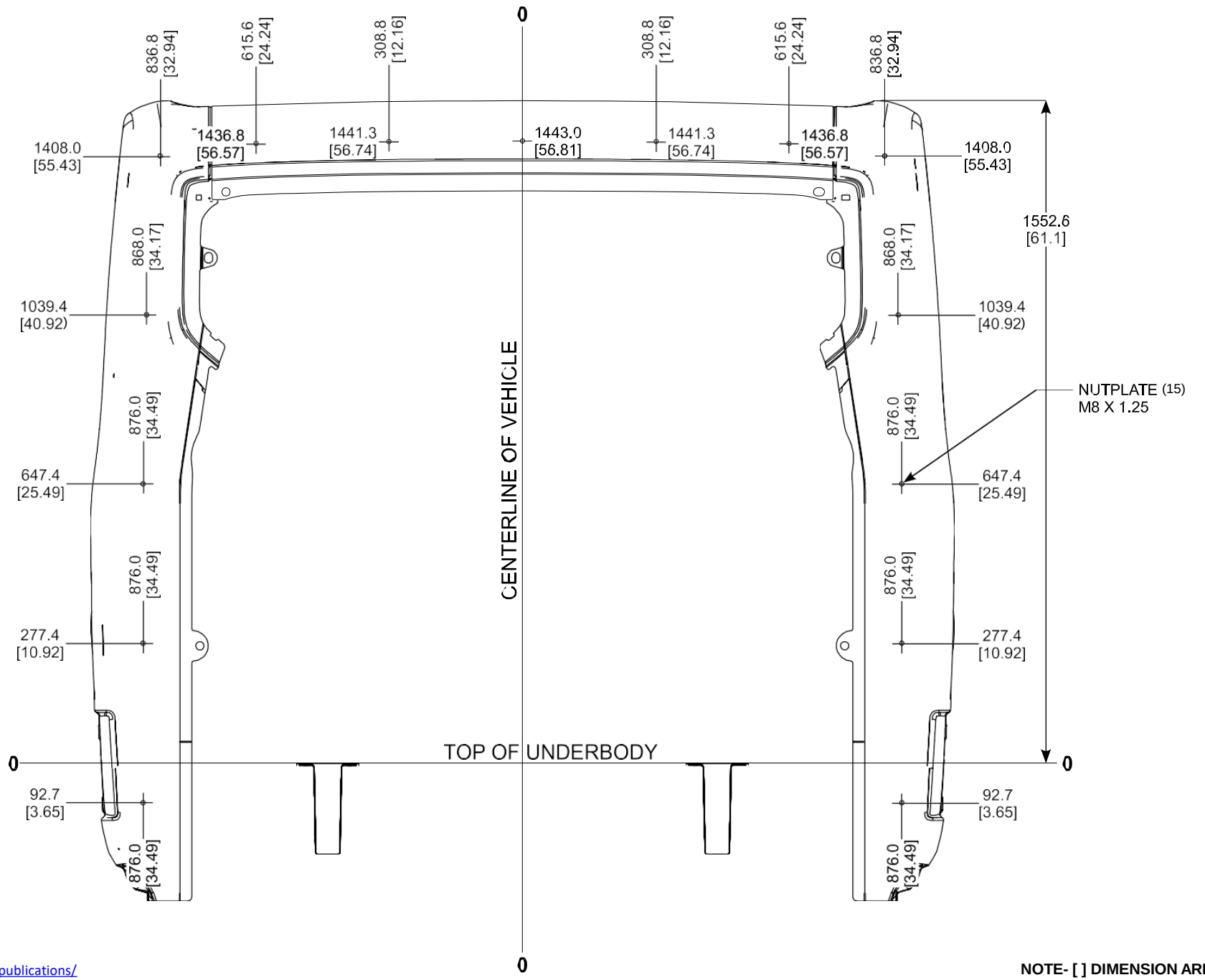


Ford PRO

Body Builders Layout Book

TRANSIT

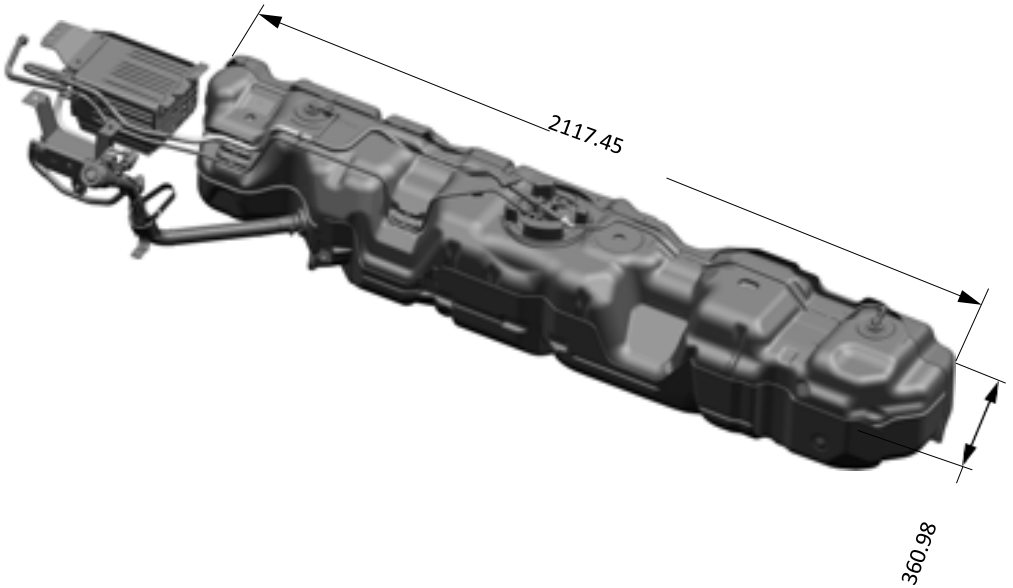
DESIGN / RECOMMENDATIONS: BACK OF CAB MOUNTING HOLES (CUTAWAY)



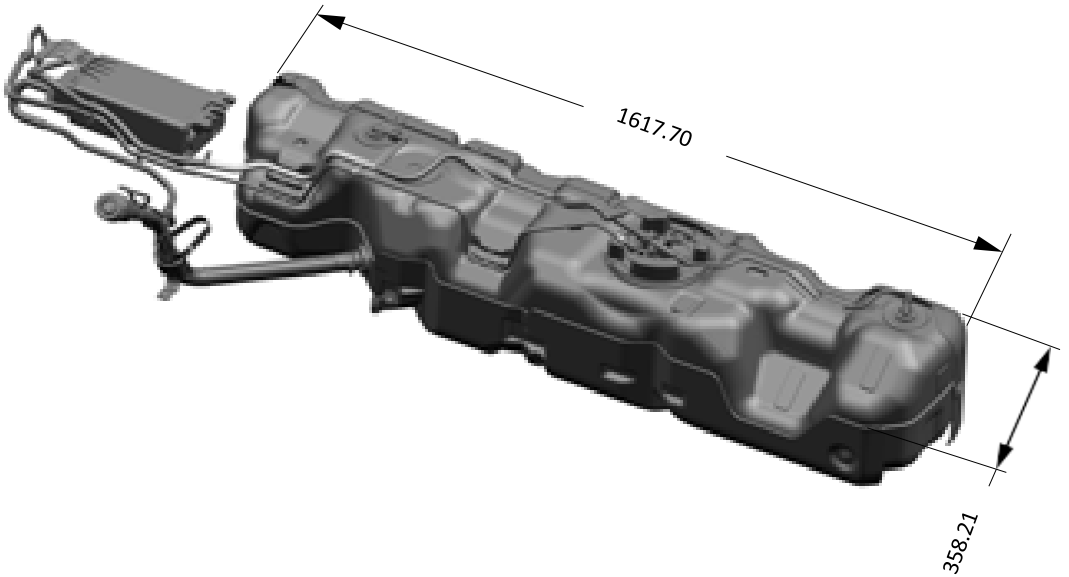
NOTE- [ ] DIMENSION ARE INCHES

TRANSIT

DESIGN / RECOMMENDATIONS: FUEL TANK (ALL MODELS)



EXTENDED RANGE SINGLE TANK

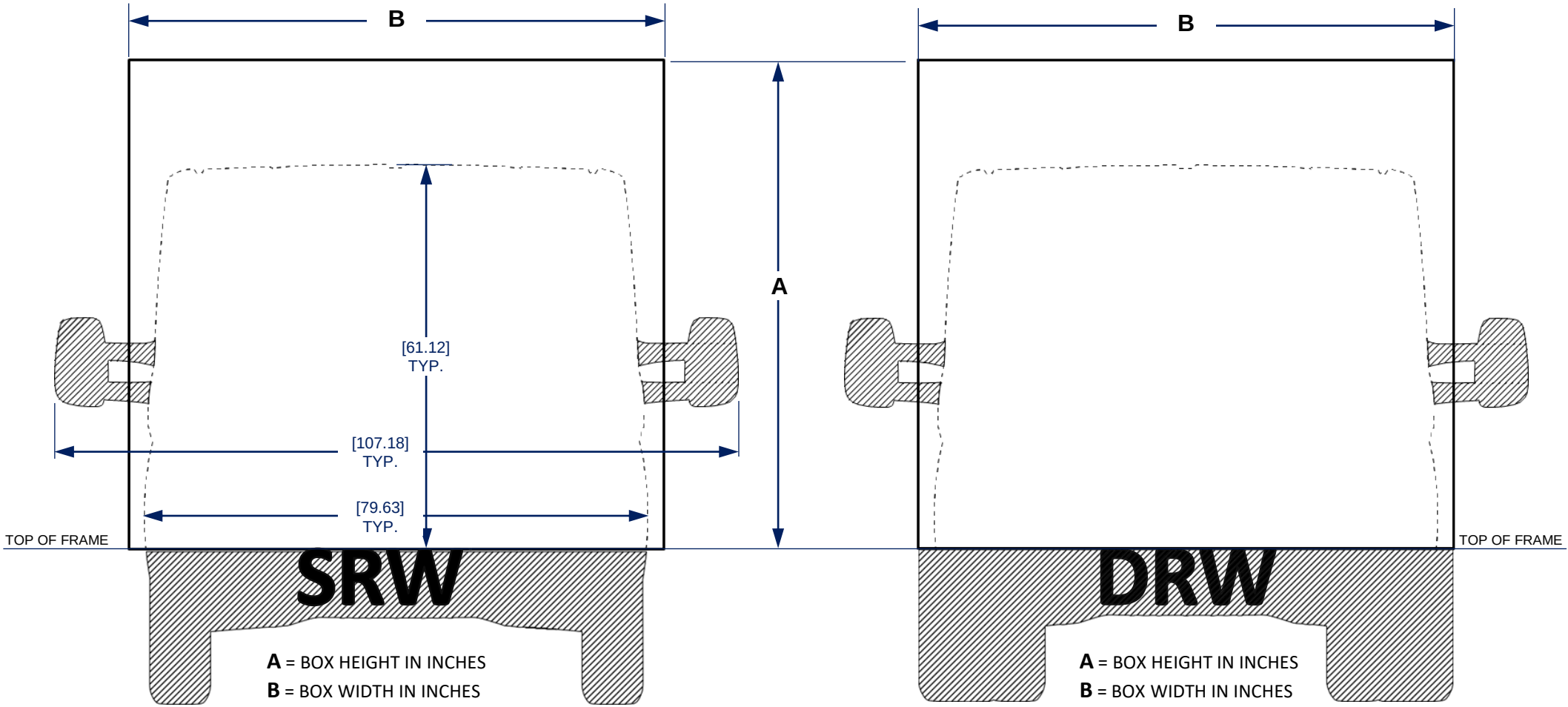


SINGLE TANK

NOTE- [ ] DIMENSION ARE INCHES

TRANSIT

DESIGN INFO / RECOMMENDATION: FRONTAL AREA RESTRICTIONS (CHASSIS CAB & CUTAWAY)



TO FIND FRONT SURFACE AREA IN SQ. INCHES: (A X B) + 1429.7 =

TO FIND FRONT SURFACE AREA IN SQ. FEET : ((A X B)) / 144) + 9.93 =

BELOW FRAME SHADED AREA = 728601 / (25.4 X 25.4) = 1129.3338 SQ. IN. or 1129.3338 / (12 X 12) = 7.8426 SQ. FT

MIRROR SHADED AREA = (96882.4 X 2) / (25.4 X 25.4) = 300.3360 SQ. IN. or 300.3360 / (12 X 12) = 2.0857 SQ. FT.

TOTAL SHADED AREA = 922365.8 / (25.4 X 25.4) = 1429.6698 SQ. IN. or 1429.6698 / (12 X 12) = 9.9282 SQ. FT.

TO FIND FRONT SURFACE AREA IN SQ. INCHES: (A X B) + 1715.6 =

TO FIND FRONT SURFACE AREA IN SQ. FEET : ((A X B)) / 144) + 11.91 =

BELOW FRAME SHADED AREA = 913123.8 / (25.4 X 25.4) = 1415.3447 SQ. IN. or 1415.3447 / (12 X 12) = 9.8287 SQ. FT

MIRROR SHADED AREA = (96882.4 X 2) / (25.4 X 25.4) = 300.3360 SQ. IN. or 300.3360 / (12 X 12) = 2.0857 SQ. FT.

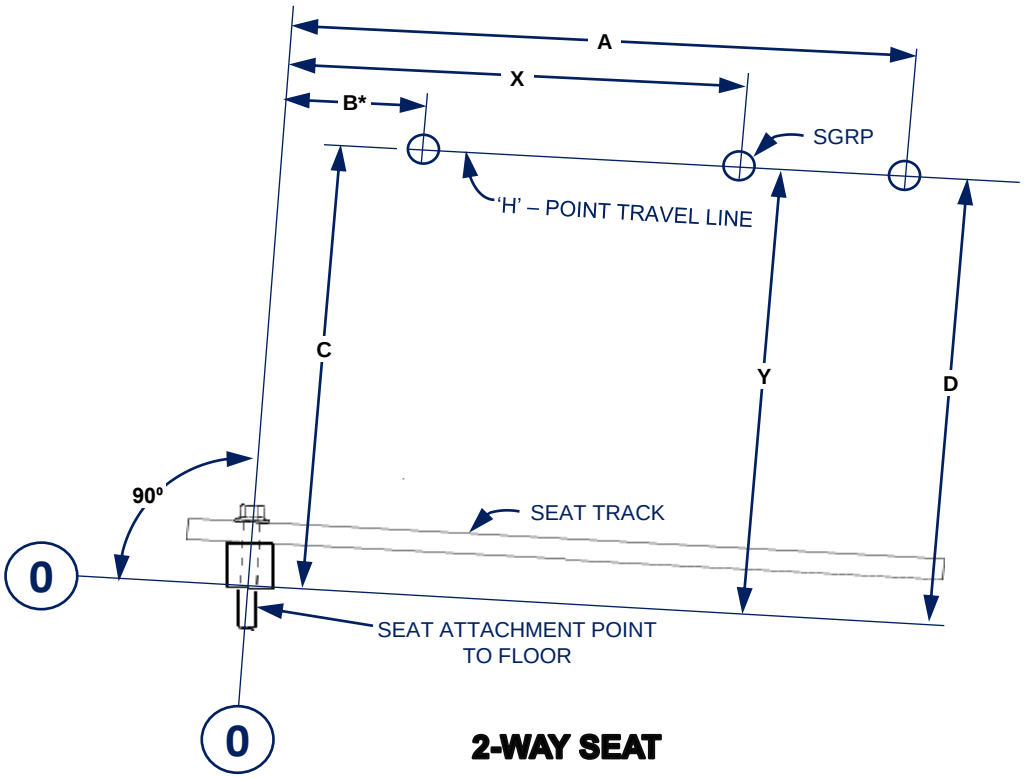
TOTAL SHADED AREA = 1106888.6 / (25.4 X 25.4) = 1715.6808 SQ. IN. or 1715.6808 / (12 X 12) = 11.9144 SQ. FT.

Ford PRO

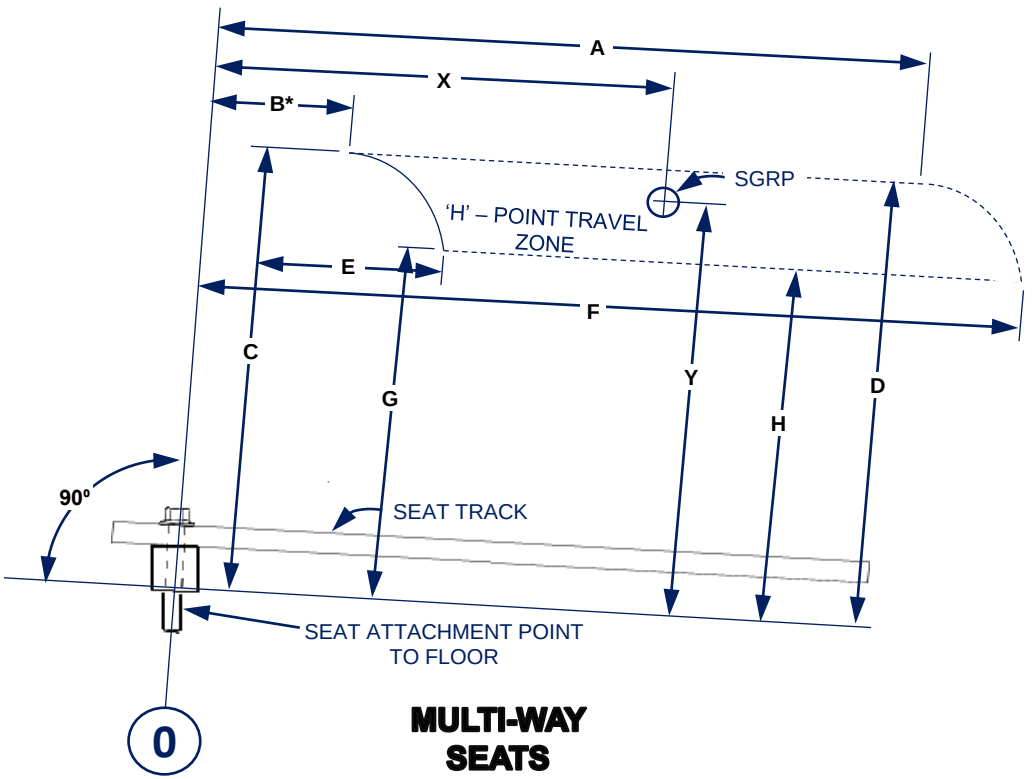
Body Builders Layout Book

TRANSIT

DESIGN/RECOMMENDATION: SEAT H-POINT (ALL MODELS)



2-WAY SEAT



MULTI-WAY SEATS

FOV

SEAT TRAVEL DATA										
	SEAT DIMENSIONS								SgRP Location	
SEAT MODEL	A	B	C	D	E	F	G	H	X	Y
2-WAY SEAT	302 [11.9]	54 [2.1]	449 [17.7]	449 [17.7]	0 [0]	0 [0]	0 [0]	0 [0]	261 [10.3]	449 [17.7]
4-WAY SWIVEL	301 [11.9]	53 [2.1]	476 [18.7]	476 [18.7]	45 [1.8]	294 [11.6]	446 [17.6]	446 [17.6]	261 [10.3]	449 [17.7]
10-WAY SEAT	293 [11.5]	44 [1.7]	479 [18.9]	479 [18.9]	35 [1.4]	284 [11.2]	400 [15.7]	400 [15.7]	261 [10.3]	449 [17.7]
SEAT TRACK ANGLE TO TOP OF FRAME = 2.4										

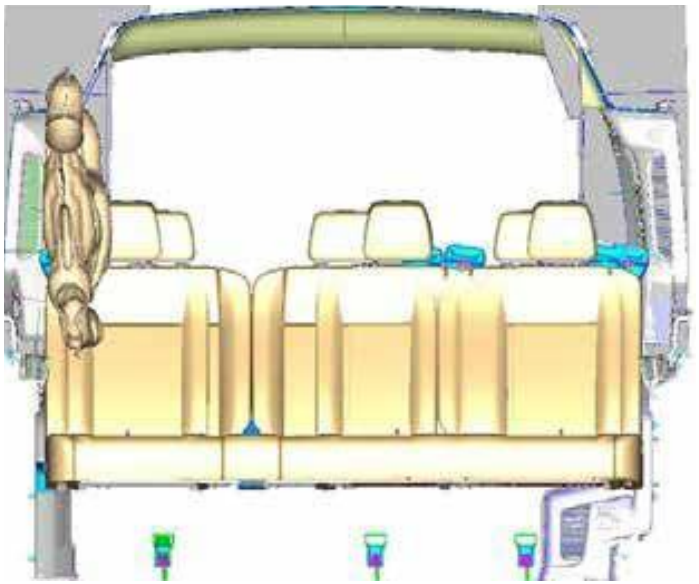
NOTE- [ ] DIMENSION ARE INCHES

TRANSIT

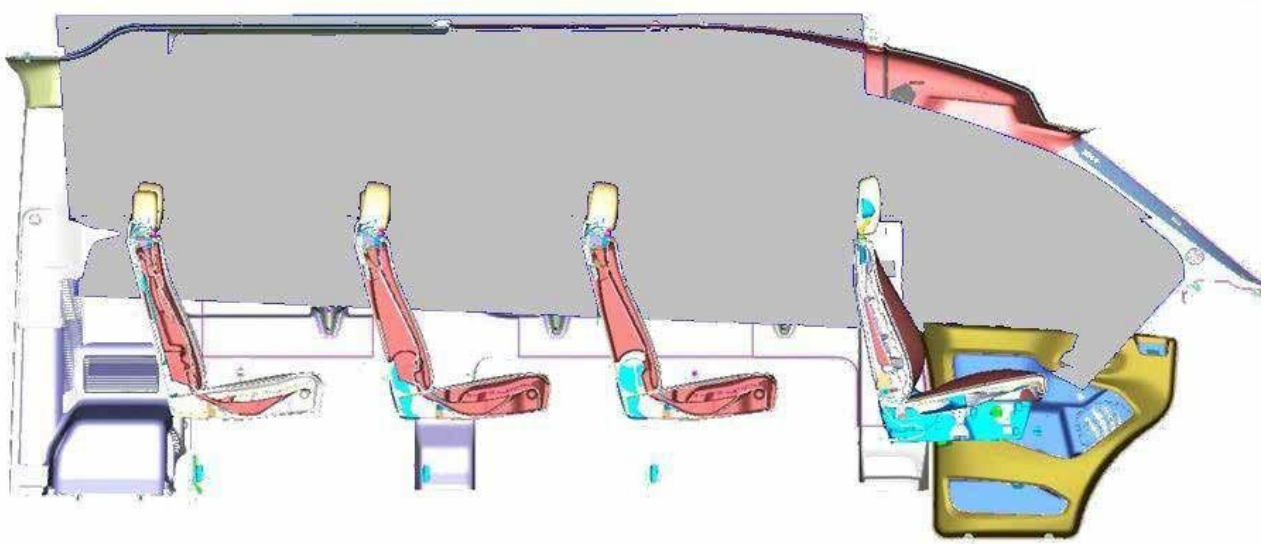
DESIGN / RECOMMENDATION: AIRBAG OCCUPANT PROTECTION ZONES (TYPICAL)

TRANSIT OCCUPANT PROTECTION ZONE

DO NOT INSTALL ADDITIONAL COMPONENTS IN THE SHADED AREAS, NOR ALTER OR MODIFY THESE AREAS



TRANSIT OCCUPANT PROTECTION ZONE



TRANSIT OCCUPANT PROTECTION ZONE (TYP.)

TRANSIT

DESIGN / RECOMMENDATION: AFTERMARKET PARTITIONS/BULKHEADS CONSIDERATIONS

AFTERMARKET PARTITIONS/BULKHEADS CONSIDERATIONS

- **Side curtain airbags are standard on Transit cargo vans starting 2016 Model Year. Upfitters installing Aftermarket Partitions / Bulkheads must ensure that installations do not interfere with side curtain airbag deployment.**

- **Medium and High Roof Recommendations:**
  Partitions or Bulkheads installed in Transit Vans must not interfere with airbag deployment zones. CAD Data (Figure 1) of the Medium and High roof Airbag keep- out Zones is available upon request Partition / Bulkhead should be positioned rearward of the prescribed keep-out zone. Additionally, The RH / LH foam blocks cannot be removed or modified. To prevent damage to the deploying airbag, panel closeout around foam blocks should be a soft edge and the forward attaching face of the partition / bulkhead should have no exposed protruding fasteners or sharp edges.

- **Low Roof Recommendations:**
  Partitions and Bulkheads need to positioned at or rearward of the front headliner / B-pillar trim surface while maintaining existing headliner and b-pillar surface. Bulkhead cannot attach directly to the headliner to ensure proper airbag deployment. (See Figures 2 and 3) Additionally, The RH / LH foam blocks cannot be removed or modified. To prevent damage to the deploying airbag, panel closeout around foam blocks should be a soft edge and the forward attaching face of the partition/ bulkhead should have no exposed protruding fasteners or sharp edges.

- **Seat Belt Retractor Damage:**
  When fastening any aftermarket equipment to the B-Pillar (such as a bulkhead or partition), the modifier must ensure that drilling operations and/or fasteners do not damage the seatbelt retractor. Damage to the seat belt retractor caused by a vehicle modifier is not a warrantable charge. See Figure 4

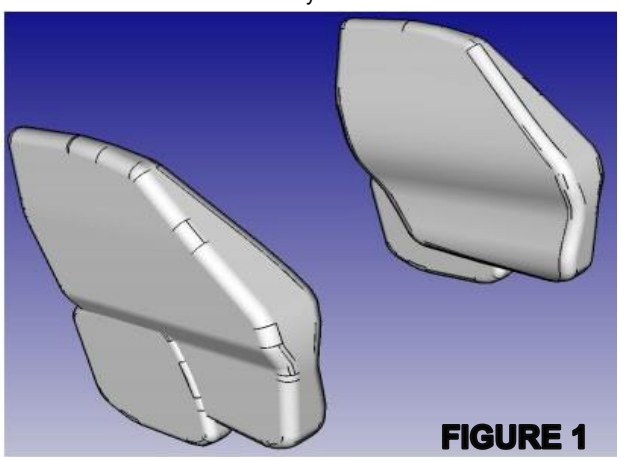


FIGURE 1

AIRBAG KEEP-OUT ZONES (MEDIUM AND HIGH ROOF)

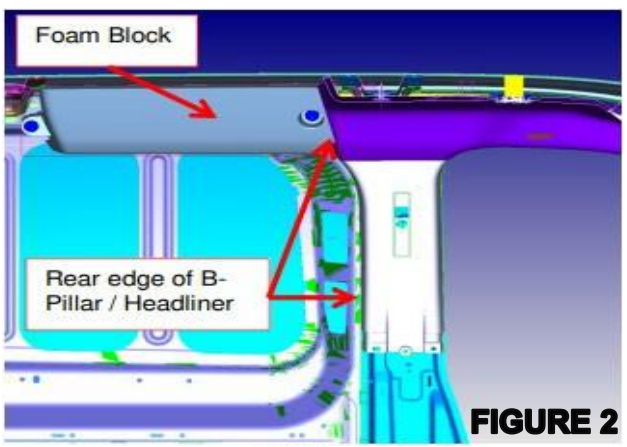


FIGURE 2

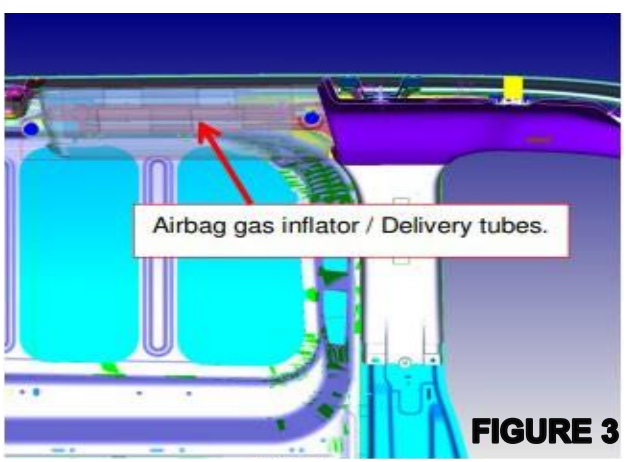


FIGURE 3

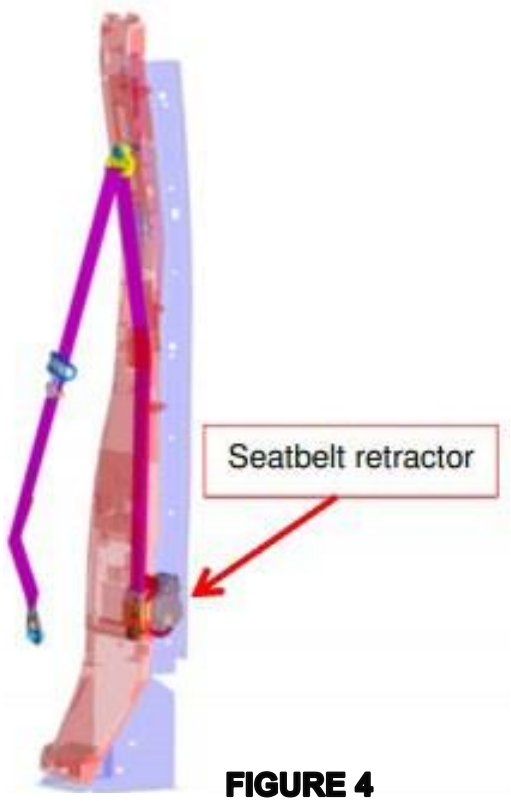


FIGURE 4

SEAT BELT RETRACTOR LOCATION (REF. LH SIDE)

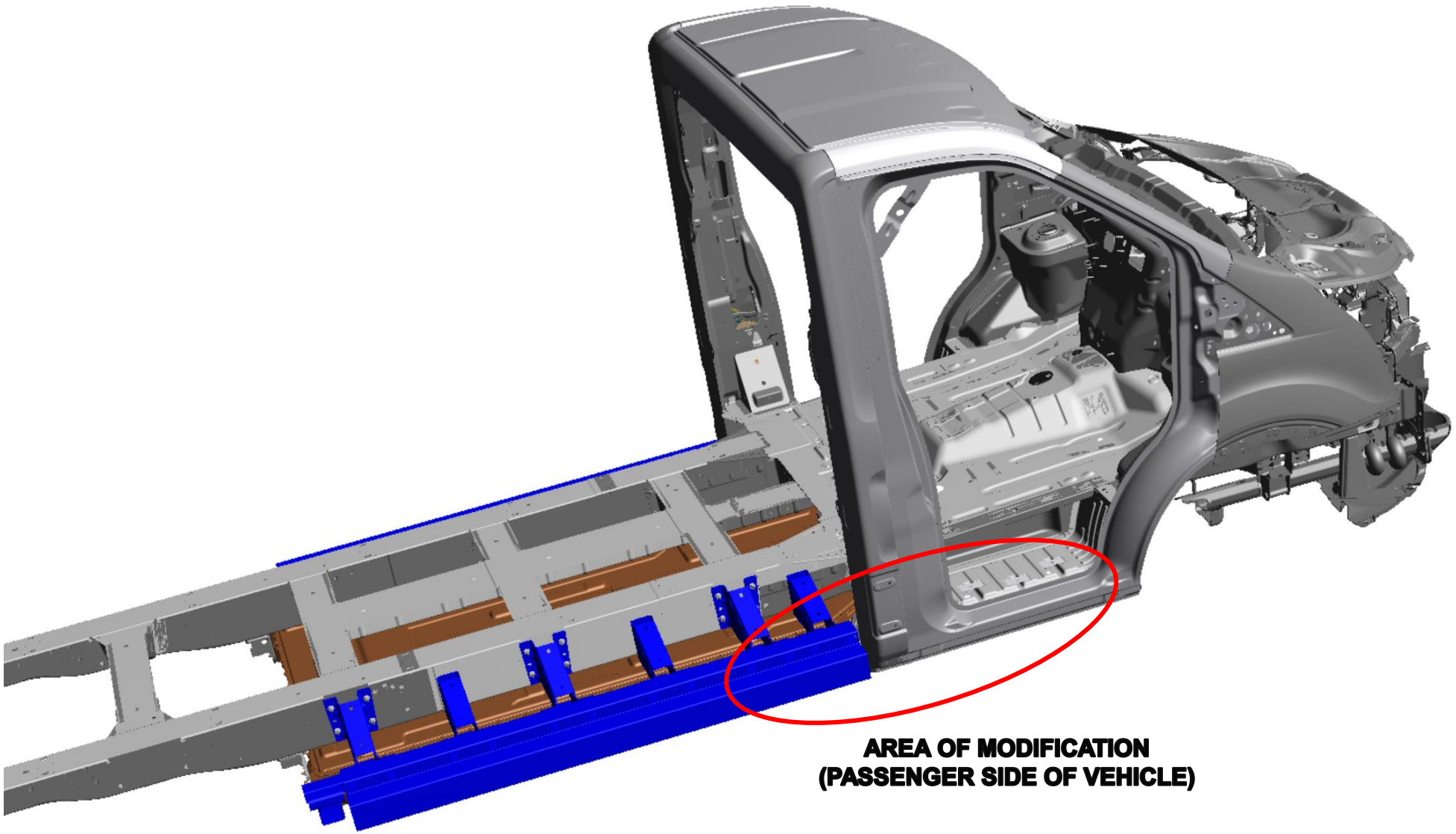
TRANSIT

DESIGN / RECOMMENDATION: BUS STEP INCORPORATION (CHASSIS CAB & CUTAWAY – 68KWH BATTERY ONLY)

The FMVSS 305 Statement of Conformity in the Transit Incomplete Vehicle Manual (IVM) allows for the removal of some existing structure and the addition of “equivalent” structure. These modifications are needed to accommodate the addition of steps for bus applications (or similar) on E-Transit chassis cabs and cutaways with 68 kwh Battery ONLY. The following guidance must be followed precisely and completely to satisfy the requirements of FMVSS 305.

The Guidance Consists Of 3 Main Components:

1. Modification of HV Battery Protective Structures
2. Modification of Body Sheet Metal Structure
3. Addition of “Equivalent” Replacement Structure



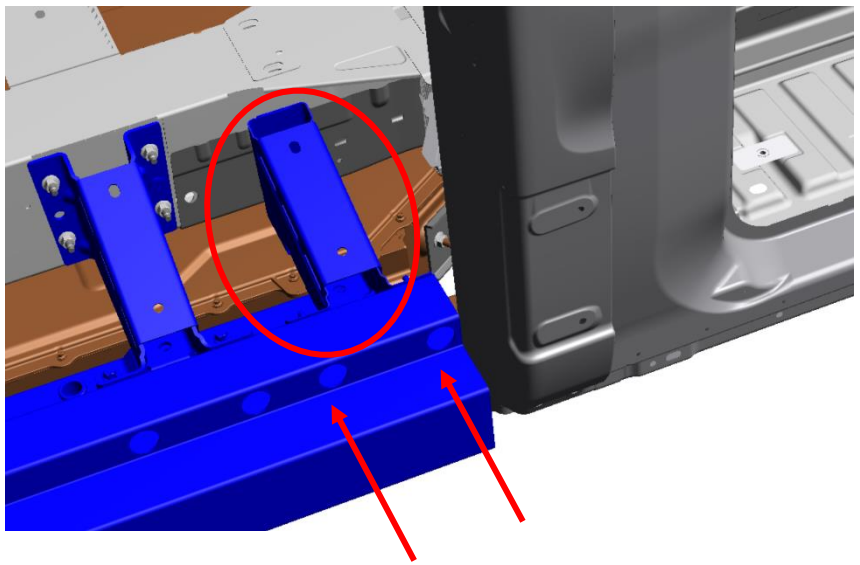
AREA OF MODIFICATION
(PASSENGER SIDE OF VEHICLE)

TRANSIT

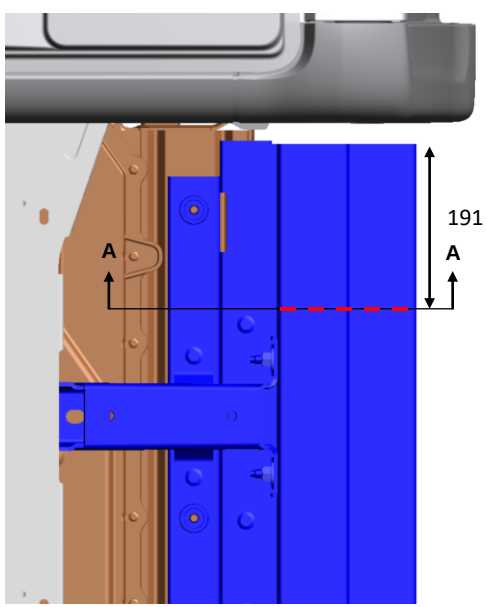
DESIGN / RECOMMENDATION: BUS STEP INCORPORATION (CHASSIS CAB & CUTAWAY – 68KWH BATTERY ONLY)

1. MODIFICATION OF HV BATTERY PROTECTIVE STRUCTURES

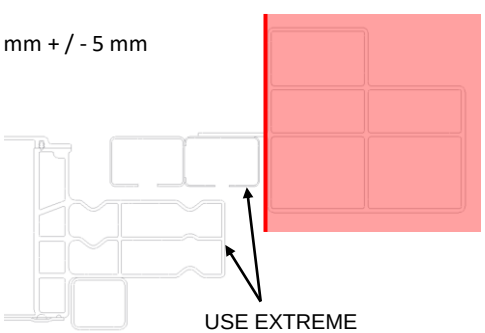
a. Remove forward most outrigger by removing two screws



b. CUT ENERGY ABSORBING MEMBER IN CROSS CAR DIRECTION (PLAN VIEW)

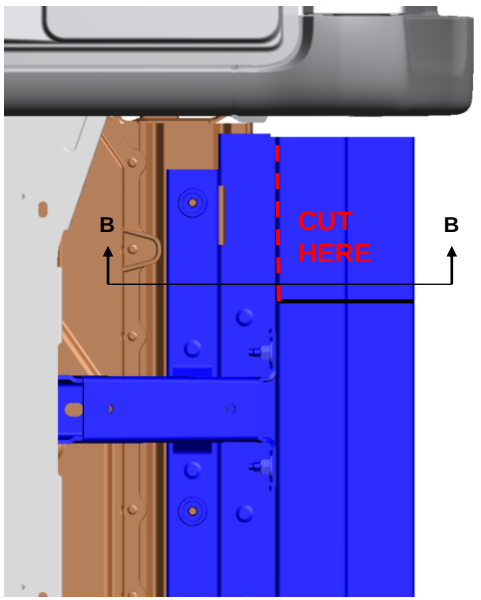


SECTION A-A

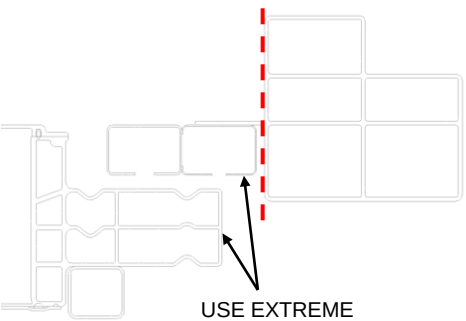


USE EXTREME CAUTION TO AVOID CONTACT WITH THESE COMPONENTS

c. CUT ENERGY ABSORBING MEMBER IN FORE-AFT DIRECTION (PLAN VIEW)

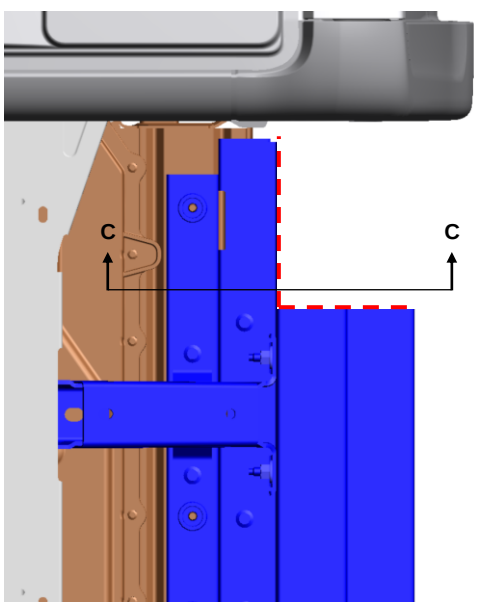


SECTION B-B

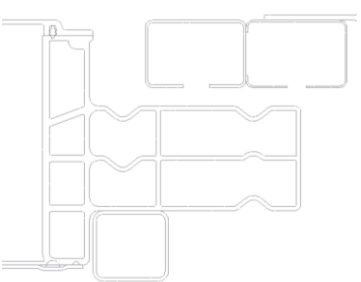


USE EXTREME CAUTION TO AVOID CONTACT WITH THESE COMPONENTS

d. RESULTANT STRUCTURE FROM STEP 1 (PLAN VIEW):



SECTION C-C

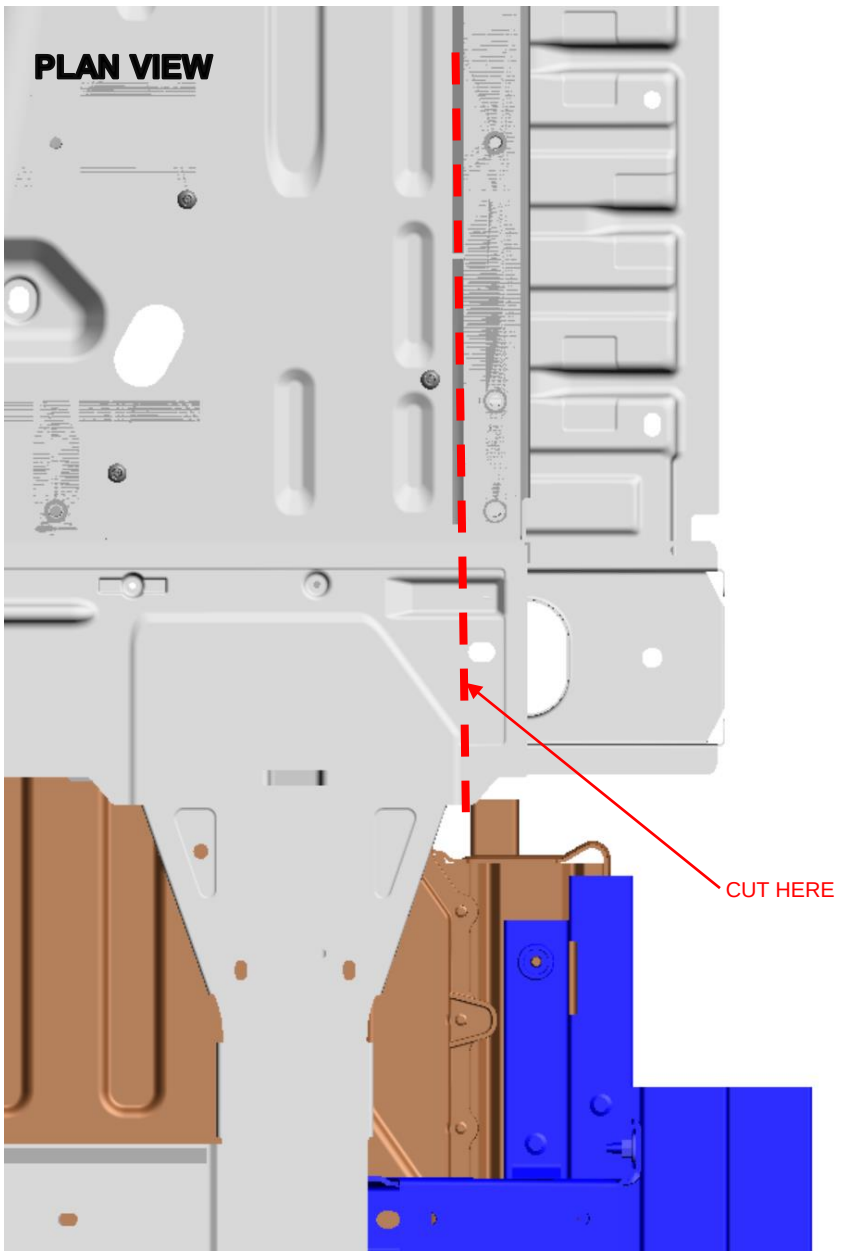


TRANSIT

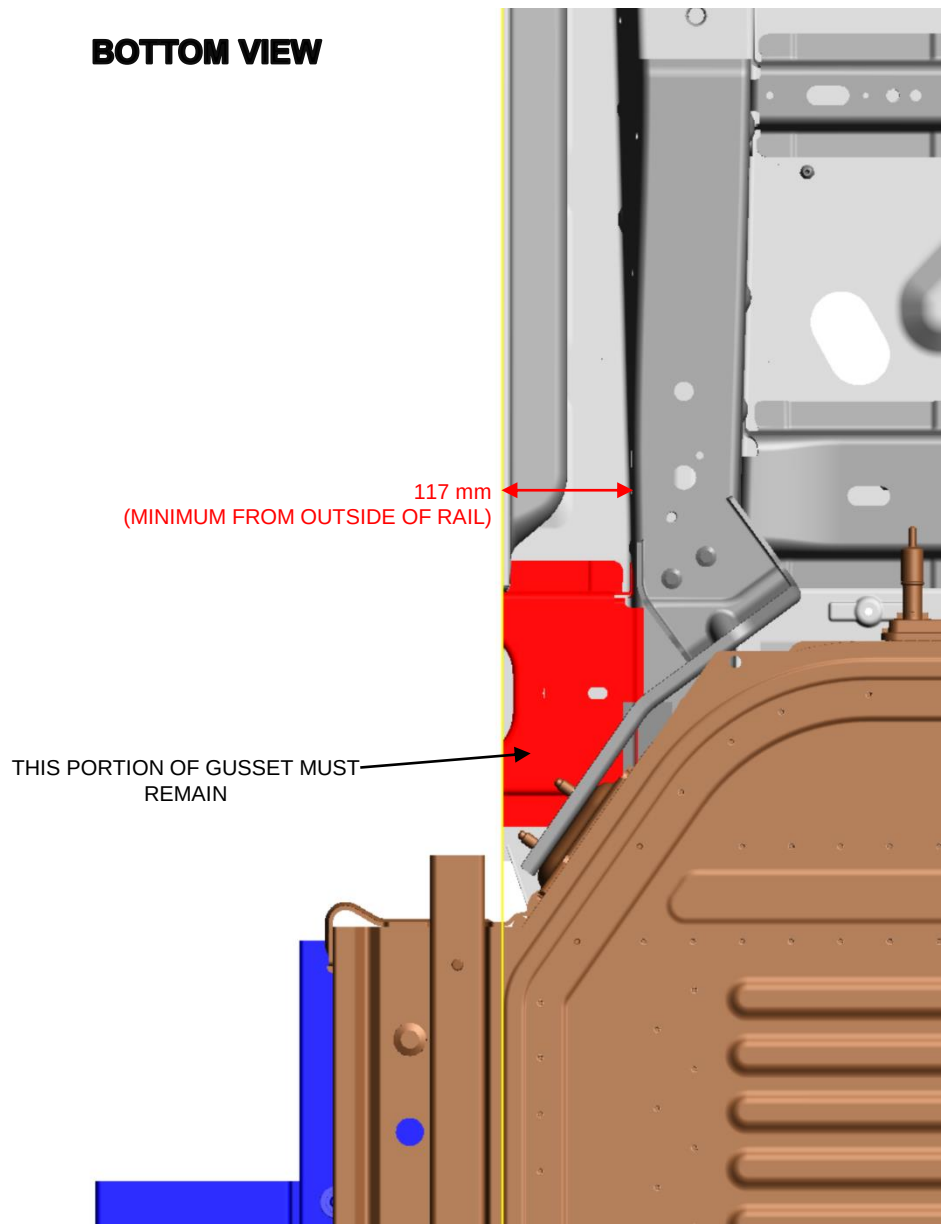
DESIGN / RECOMMENDATION: BUS STEP INCORPORATION (CHASSIS CAB & CUTAWAY – 68KWH BATTERY ONLY)

2. **MODIFICATION OF BODY SHEET METAL STRUCTURE**

a. **Cut through floor and floor structure to remove B-pillar and part of step (Plan View - upper B-pillar and roof not shown for clarity)**



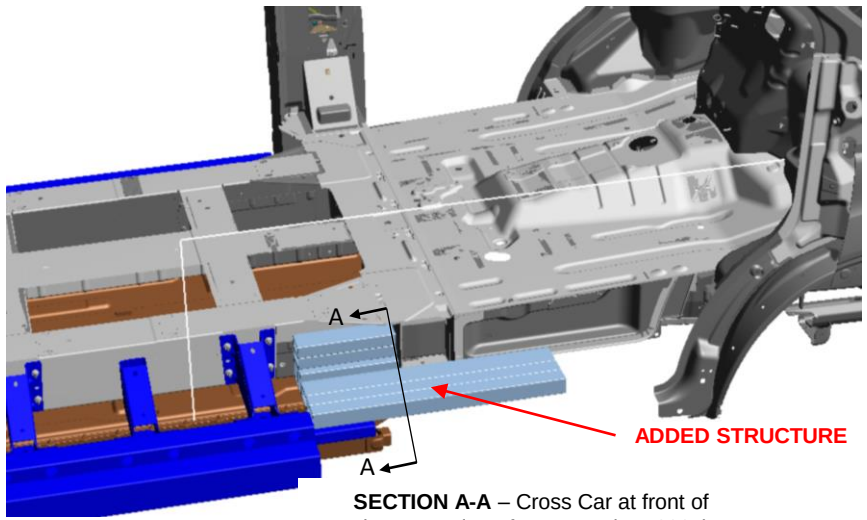
b. **CRITICAL DIMENSION FOR STEP 2 (BOTTOM VIEW – RESULT SHOWN)**



TRANSIT

DESIGN / RECOMMENDATION: BUS STEP INCORPORATION (CHASSIS CAB & CUTAWAY – 68KWH BATTERY ONLY)

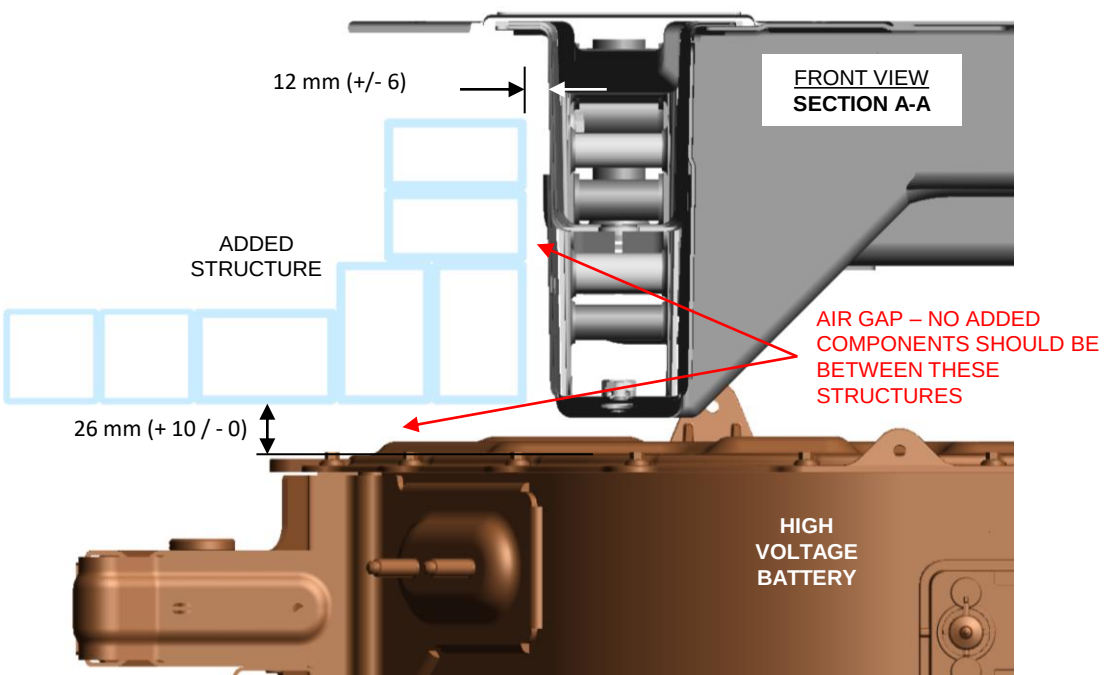
3. ADDITION OF "EQUIVALENT" REPLACEMENT STRUCTURE

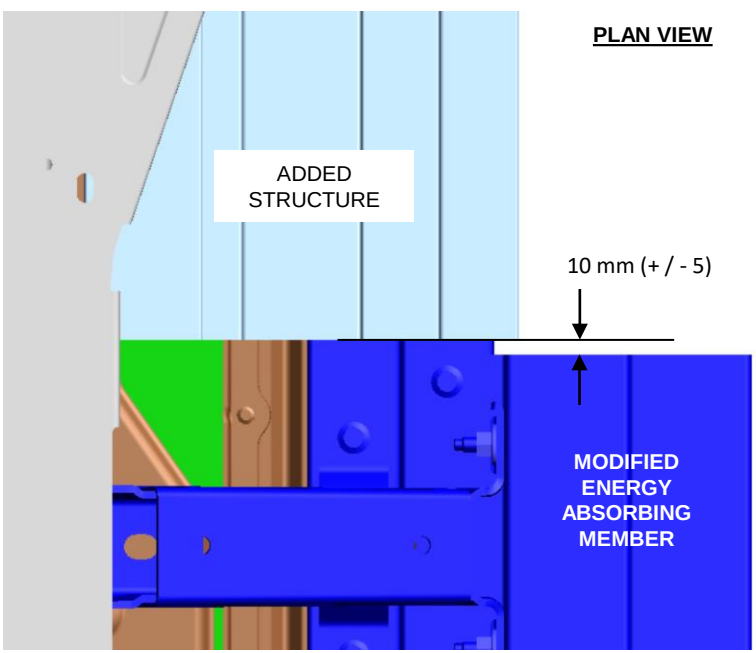


SECTION A-A – Cross Car at front of shorter portion of structure (X = 3337)

NOTE: the added structure described here has been evaluated to meet the standard FMVSS 305. Additional structure and/or attachments may be necessary to achieve other attribute targets (Durability, Noise, Vibration and Harshness etc.) for the completed vehicle.

a. LOCATION OF REPLACEMENT STRUCTURE


12 mm (+/- 6)
FRONT VIEW
SECTION A-A
ADDED STRUCTURE
AIR GAP – NO ADDED COMPONENTS SHOULD BE BETWEEN THESE STRUCTURES
26 mm (+ 10 / - 0)
HIGH VOLTAGE BATTERY

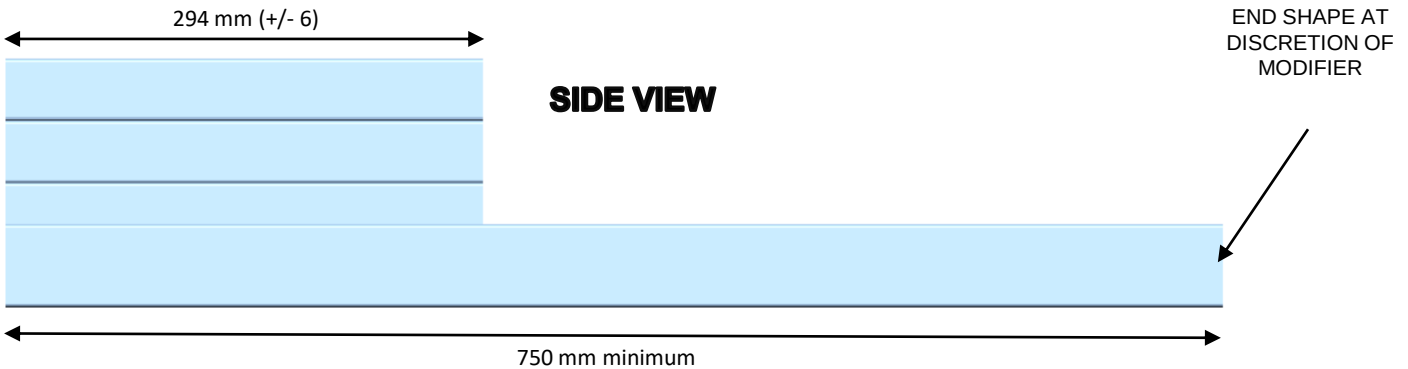


TRANSIT

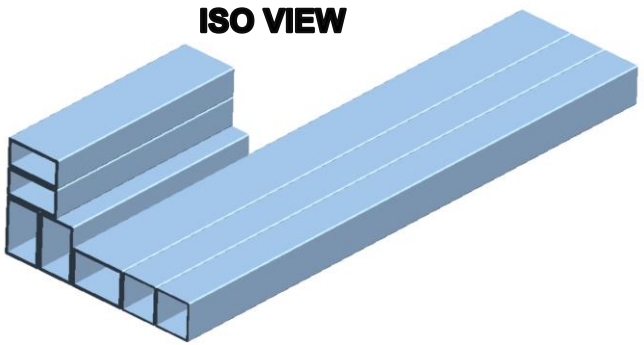
DESIGN / RECOMMENDATION: BUS STEP INCORPORATION (CHASSIS CAB & CUTAWAY – 68KWH BATTERY ONLY)

b. DIMENSIONS AND MATERIALS OF REPLACEMENT STRUCTURE

MATERIAL:
Extruded 6061-T6 Aluminum
per ASTM B221

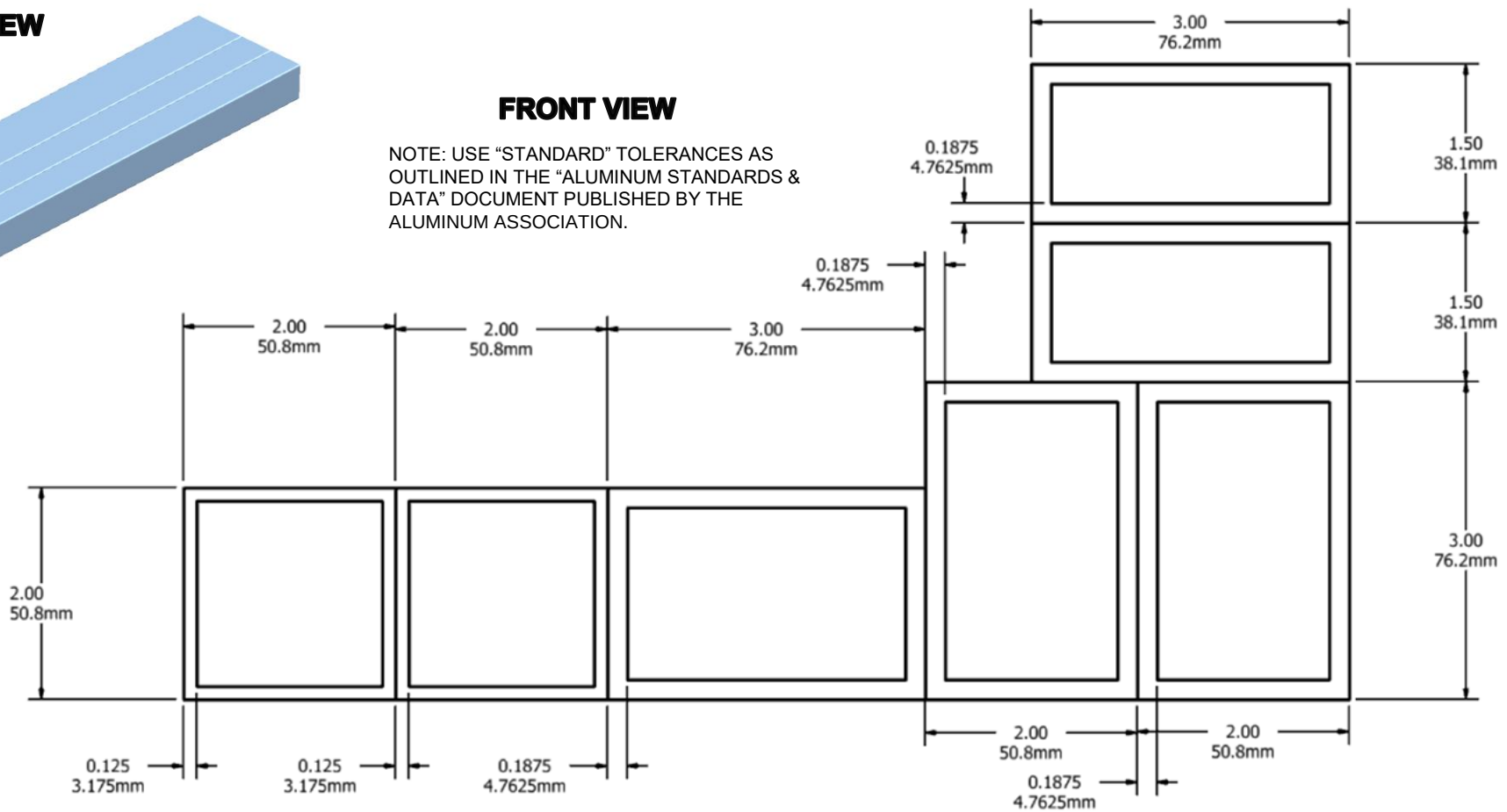


ISO VIEW



FRONT VIEW

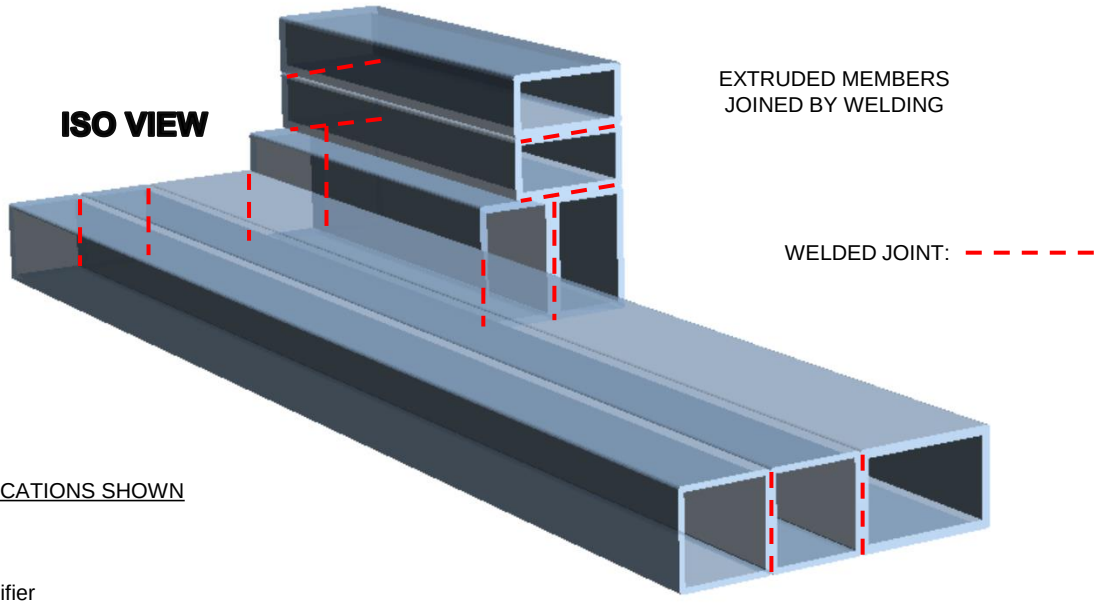
NOTE: USE “STANDARD” TOLERANCES AS OUTLINED IN THE “ALUMINUM STANDARDS & DATA” DOCUMENT PUBLISHED BY THE ALUMINUM ASSOCIATION.



TRANSIT

DESIGN / RECOMMENDATION: BUS STEP INCORPORATION (CHASSIS CAB & CUTAWAY – 68KWH BATTERY ONLY)

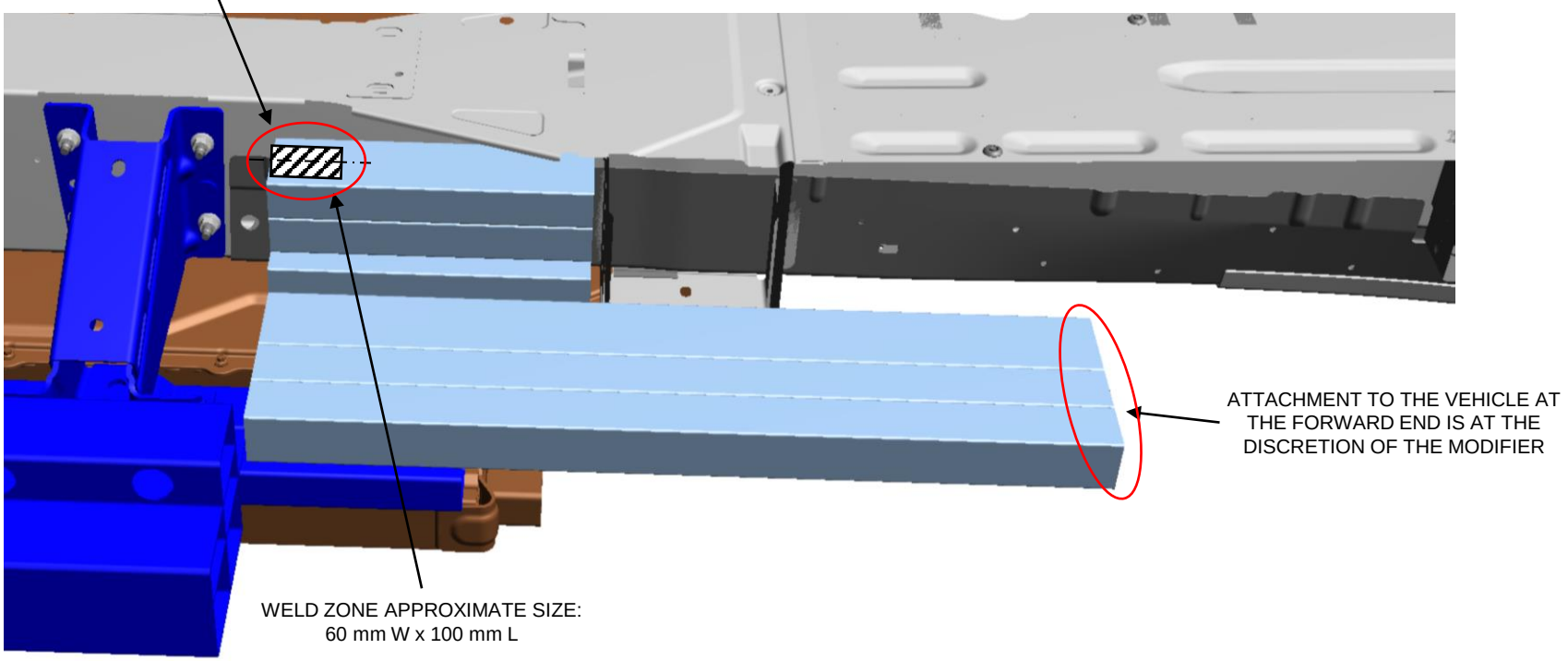
c. JOINING OF REPLACEMENT STRUCTURE



<u>THE ADDED STRUCTURE SHOULD BE ATTACHED TO THE VEHICLE IN ONLY THE 2 LOCATIONS SHOWN</u>
Attachment to the vehicle at the rear end must meet 2 criteria:

- Is welded to the added structure in the zone shown
- Is bolted to the vehicle frame rail

Otherwise, the geometry and materials of the rear attachment are at the discretion of the Modifier


ATTACHMENT TO THE VEHICLE AT
THE FORWARD END IS AT THE
DISCRETION OF THE MODIFIER
WELD ZONE APPROXIMATE SIZE:
60 mm W x 100 mm L

Ford PRO Body Builders Layout Book

TRANSIT

CLIMATE CONTROL: GREEN HOUSE GAS EVAPORATIVE EMISSION SPECIFICATIONS

Pursuant to California regulation 17 CCR §95663 , and EPA 40CFR 1037.115(e) the specific leakage for this vehicle (as built by Ford Motor Company) is shown in the table below (see "J2727 Leakage Value" column). If the vehicle air conditioning system is modified in any way, or air conditioning systems are added, the intermediate or final-stage manufacturer must calculate the final system leakage. If desired, the spreadsheet used by Ford to calculate the J2727 Leakage is available and can be edited to reflect the modified system.

Please contact Ford BBAS to request a copy of the vehicle line specific GHG Evaporative Emissions Worksheet: https://www.fordpro.com/en-us/upfit/contact-us/

MY	VEHICLE LINE	FEATURES / MODELS	EVAPORATOR	POWERTRAIN	REFRIGERANT	CHARGE SIZE OF A/C SYSTEM (KG)	J2727 LEAKAGE VALUE (G/YR)	MAX ALLOWED LEAKAGE
2024	TRANSIT	ALL	SINGLE	3.5L PFDi & 3.5l GTDI	R-134a	0.85	6.155	12.75
2024	TRANSIT	REGULAR WB	DUAL	3.5L PFDi V6	R-134a	1.425	6.966	21.375
2024	TRANSIT	LONG WB.	DUAL	3.5L PFDi V6	R-134a	1.425	7.057	21.375
2024	TRANSIT	LONG WB. EXTENDED LENGTH	DUAL	3.5L PFDi V6	R-134a	1.425	7.101	21.375
2024	TRANSIT	REGULAR WB	DUAL	3.5L GTDI V6	R-134a	1.425	6.966	21.375
2024	TRANSIT	LONG WB.	DUAL	3.5L GTDI V6	R-134a	1.425	7.057	21.375
2024	TRANSIT	LONG WB. EXTENDED LENGTH	DUAL	3.5L GTDI V6	R-134a	1.425	7.101	21.375
2024	TRANSIT	PREP PACK	SINGLE	3.5L PFDi & 3.5l GTDI	R-134a	0.85	6.281	12.75
2024	TRANSIT	BEV 68kWH	DUAL	ELECTRIC VEHICLE	R-134a	0.9	4.584	13.5
2024	TRANSIT	BEV 89.9kWH	DUAL	ELECTRIC VEHICLE	R-134a	0.9	4.604	13.5

TRANSIT

CLIMATE CONTROL: AUXILIARY A/C & HEATER AFTERMARKET ADDITION GUIDANCE

It is recommended that when installing an auxiliary heater and/or air conditioning system the Final Stage Manufacturer meet or exceed the occupant comfort heating and cooling performance of the current production vehicle.

The performance of the Ford defrost and defog system must not be diminished by the addition of an auxiliary heater and/or air conditioning system. Final Stage Manufacturers are reminded of their responsibility to maintain compliance to FMVSS 103 and CMVSS 103, Windshield Defrosting and Defogging Systems.

FORD MOTOR COMPANY OEM FRONT SYSTEM SPECIFICATIONS FOR E-TRANSIT:

- Thermostatic Expansion Valve (TXV) size: 2.0 Ton
- AC Compressor Displacement: 34 cc Fixed
- AC Condenser Heat Rejection: Heating Mode - 2.6 kW, Cooling Mode - 10.3 kW
- R134a Refrigerant Charge: 31.7 oz (900g)
- POE Refrigerant Oil: 4.94 oz (140g)
- Coolant Heater: 5.0 kW

AUXILIARY AC REQUIREMENTS:

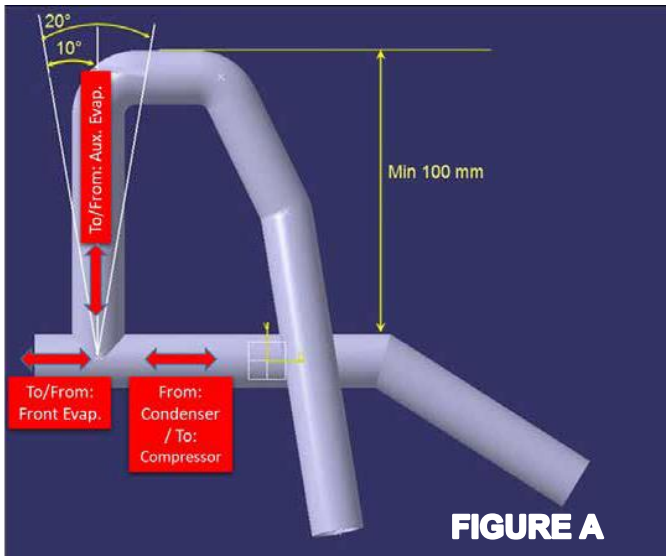
- No factory prep packages are available. Tie into the OEM system using custom lines that obtain refrigerant liquid between the receiver dryer and front TXV and return refrigerant to the suction line between the front TXV and the compressor.
- Do NOT use an auxiliary Cycling Clutch Orifice Tube (CCOT) system in combination with the OEM front TXV system.
- An auxiliary TXV with a refrigerant bleed is required. This will assist oil and refrigerant return to the AC Compressor under all conditions.
- It is the responsibility of the Final Stage Manufacturer when combining an auxiliary AC system with the OEM AC system to perform Refrigerant Charge Level Determination, Oil-in-Circulation and Evaporator Icing tests.
- Motorcraft R-1234yf Refrigerant POE oil (WSS-M2C31-B2 / YN-34) must be used as the refrigerant system lubricant. Addition of any other oil risks damage to the AC compressor and contaminates the refrigerant system.
- It is the responsibility of the Final Stage Manufacturer to maintain a 4% suspended oil ratio in the AC system for proper compressor lubrication.
- A label stating the revised total refrigerant charge, type of refrigerant (R134a), total oil charge and type of compressor lubricating oil (POE), must be affixed in a conspicuous place in the engine compartment.
- Compressor discharge gas temperature should not exceed 130°C skin temperature when measured under any conditions. Skin temperature should be measured on the AC discharge line immediately out of the compressor.
- Final Stage Manufacturers are reminded of their responsibility to maintain compliance to CARB and EPA requirements related to AC Greenhouse Gas Regulations.
- AC systems with Electric Compressors should use barrier or veneer type A/C hose, SAE J3062 Hose Type Cu or EU. Joint or connection types (serviceable fittings) should be Seal Washer, Dual Seal Washer, Seal Washer with O-ring, or Metal Seal Fitting (Metal Gasket) as shown in SAE J2727.
- At no time should the cooling fan shroud or cooling fans be modified.
- Do not modify any of the front-end seals to the cooling module. These prevent hot air recirculation from coming back into the AC Condenser.
- Do not splice into any compressor wire harness.

AUXILIARY HEATER REQUIREMENTS

- Tying into the OEM Heating and Defrost coolant system will result in the sharing of heated coolant produced by a single high voltage coolant heater across the production front HVAC heater core and the auxiliary HVAC heater core. This may result in lower than desired discharge air temperatures and undesired heater performance.
- Use only the coolant type specified in the vehicle owner's manual

AC AND HEATER LINE ROUTINGS

- Final Stage Manufacturer may want to consider adding manual bleed devices/ports in high points of the coolant system to assist with purging air out of the system during the coolant fill process.
- Routing clips or other aids should be used to keep components from rubbing or chaffing.
- Use only metallic "Y" and "T" type coolant fittings or OEM approved materials.
- Do not route lines/hoses in the wheelhouse area.
- Do not route lines/hoses near sharp edges or moving component parts. There must be shield protection from any potential abrasive sources.
- Do not route refrigerant or coolant lines below the ground clearance zone.
- When routing in stone kick-up area, lines should be protected by shielding.
- Minimize the use of concentric protective heater hose shields. Limit length of concentric hose shields to 305 mm [12 in] maximum.
- Consider encasing added suction lines in insulating foam from connector location under body to the secondary evaporator for improved performance.
- To prevent liquid accumulation in the rear of the vehicle, a "candy cane" style connection is recommended on the Final Stage Manufacturers' AC lines that tie into the OEM system. Recommended minimum height is 100 mm and no more than 10 degrees from vertical. See Figure A.



BATTERY HEATING AND COOLING

- The large traction battery on this vehicle is cooled by the chiller and otherwise surface convection. There is no low temperature radiator (LTR). The chiller is an evaporator connected to the AC system that produces cold coolant, instead of cold air, to cool the battery.
- The battery is heated with the same heater used for the cabin, although battery heating only occurs when the vehicle is connected to a charger.
- Vehicle performance effects due to battery thermal derate can occur, if the battery thermal system (heat, cool) is impacted, making the battery too hot or too cold for proper performance.

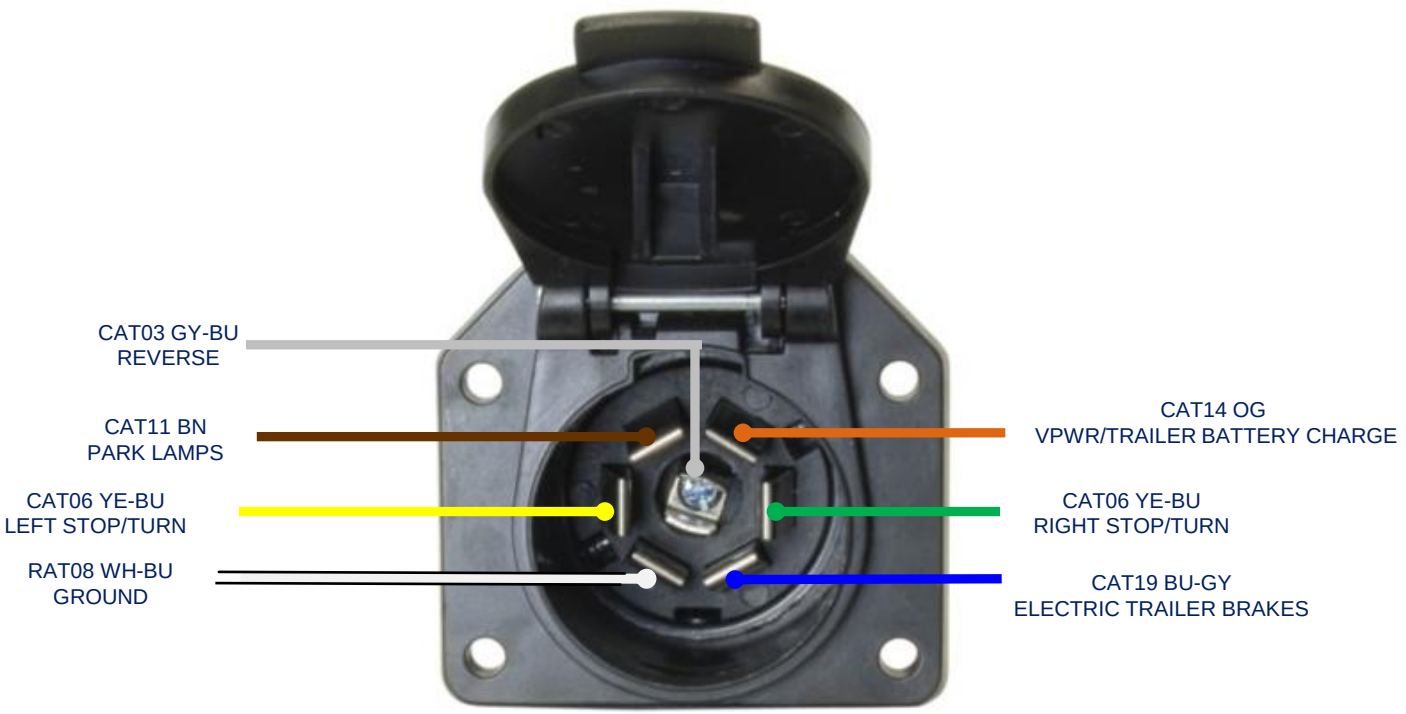
OTHER/MISCELLANEOUS

- Ideally, auxiliary Heater outlets should be located lower in vehicle, near the floor and auxiliary AC outlets should be located higher in the vehicle, near or in the headliner
- Keeping the vehicle plugged into a level 2 charger when not in use will enable battery conditioning (charging, heating, cooling) and cabin pre-heating or cooling. This will assist in maximizing available battery power during vehicle usage.
- E-Transit is available with an optional 2.4 kW Pro Power Onboard feature. Final Stage Manufacturers may want to consider usage of this feature for supplemental heater and cooling purposes
- Final Stage Manufactures should consider modifications such as solar glass and lightweight insulation to reduce the overall thermal load on the vehicle, thereby, maximizing the battery power available for vehicle usage.

TRANSIT

ELECTRICAL: TRAILER TOW WIRING HARNESS

CIRCUIT NUMBER	CIRCUIT DESCRIPTION	COLOR CODE
CAT06	LEFT STOP/TURN	YE-BU
RAT08	GROUND	WH-BU
CAT19	ELECTRIC TRAILER BRAKES	BU-GY
CAT06	LEFT STOP/TURN	YE-BU
CAT14	VPWR/TRAILER BATTERY CHARGE	OG
CAT11	PARK LAMPS	PARK LAMPS
CAT03	REVERSE	GY-BU



TRANSIT
SEIC / PTO: OPERATION

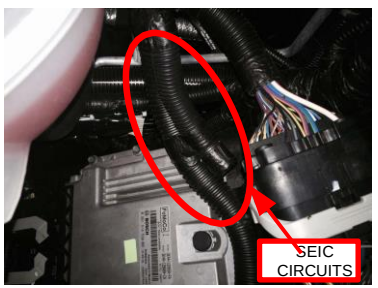
STATIONARY ELEVATED IDLE CONTROL (SEIC)
- A powertrain control module (PCM) strategy that provides elevated engine speed to drive auxiliary commercial equipment such as hydraulic pumps, generators, air compressors; or maintain vehicle battery charge under extreme electrical demands.
- SEIC is standard on Transit for use with FEAD mounted PTOs.

CUSTOMER ACCESS WIRES FOR SEIC AND VSO/CTO/PARK SIGNALS
- Located in the engine compartment, reference images
- The final stage manufacturer or upfitter is required to supply the customer interface equipment.

SEIC OPERATION:
- Intended to be commanded ONLY by applying battery voltage to certain customer access blunt cut wire circuits, and adding a target-speed resistor, and is only available when the vehicle road speed signal is zero.
- Includes a link circuit which changes from open-circuit to ground when enablers are met, that may be used to turn on an indicator lamp, while providing battery power to an aftermarket PTO clutch or solenoid.
- Ramp rates are fixed and cannot be altered by the customer
  - Minimum engine speed ~ 800 RPM
  - Maximum engine speed ~ 2400 RPM

Typical SEIC Engagement Sequence
- Initiating SEIC by applying battery voltage to SEIC-PTO wire immediately commands the PCM to first look for enabling conditions, such as vehicle gearshift selector in PARK, engine at base idle speed of about 650 RPM, etc. A complete list of enablers is provided in the “SEIC Enable/Disable Conditions” section of this bulletin. Once enablers are satisfied then the following takes place:
  1. Command is sent to increases engine speed to 900 RPM standby
  2. The PTO _RELAY low-side driver circuit from open-circuit to ground
  3. Engine speed increases to the target RPM determined by resistor (reference Resistor Chart)

Special Situations - Alternative Calibration
- All Ford vehicles have an “Alternative Calibration’ or ‘ALT-CAL’ installed in the PCM that conditions the powertrain during its early lifetime. It may increase the PARK-idle or Drive-idle speed of the engine, by as small as 50 RPM or by several hundred. It affects SEIC initiation by not letting it activate, because one of the SEIC enablers is having a steady idle speed, generally near 650 RPM. If ‘ALT-CAL’ sets the idle at 700 RPM then SEIC activation will be prevented. ‘ALT-CAL’ is normally removed after 50 key-on starts, or by driving over 5 continuous miles; it is also sometimes erased by disconnecting the battery.



TRANSIT ENGINE COMPARTMENT
SEIC circuit location, found under hood, wrapped in convolute, taped to harness behind coolant reservoir.

Special Situations - Battery Charge Protect Battery charge protect mode is available on 3.5L Gas and 3.5L GTDI gas engine models. On these powertrains, Battery Charge protect mode is determined through resistor selection (Reference Resistor Chart). Note: PTO RPM REQ must have a voltage input between .16 and .20 for BCP to function. When it is switched on the engine speed goes immediately to 600. From this state, the PCM uses battery voltage as well as ambient air temp., engine oil temperature information to raise engine speed higher to maintain a certain battery charge. Maximum engine speed in BCP mode is 1200 rpm. Loss of an operating condition after BCP is engaged will require the BCP switch to be cycled before BCP will re-engage.

SEIC ENABLE/DISABLE CONDITIONS

VEHICLE CONDITIONS TO ENABLE SEIC (ALL ARE REQUIRED)	VEHICLE CONDITIONS THAT DISABLE SEIC (ANY ONE REQUIRED)	GAS ENGINE
PARKING BRAKE APPLIED	PARKING BRAKE DISENGAGED	YES
FOOT OFF OF SERVICE BRAKE	DEPRESSING SERVCE BRAKE	YES[2]
VEHICLE IN PARK (AUTOMATIC)	VEHICLE TAKEN OUT OF PARK	YES
FOOT OFF OF ACCELERATOR PEDAL		YES
VEHICLE SPEED IS 0 MPH (STATIONARY)		YES
ENGINE SPEED AT A STABLE BASE IDLE SPEED		YES[1]
	TRANMISSION OIL TEMPAERATURE (TOT) LIMIT EXCEEDS 240° F	YES[2]
ENGINE COOLANT TEMPERATURE (ECT) 40° F MINIMUM	ENGINE COOLANT TEMPAERATURE LIMIT (ECT)	YES[2]
	CATALYST TEMPERATURE LIMIT	YES[2]

NOTE 1: It a SEIC disabling condition occurs, the engine must be allowed to reach stable base idle before the system can be re-initiated. This could take up to 15 seconds. If an attempt is made to reinitiate SEIC before the engine has reached a stable base idle SEIC will not engage. The operator will have to turn SEIC off. And then back on once the vehicle has reached a stable base idle.

NOTE 2: A "change-of-state” at both the "PTO_REQUEST 1 circuit Is required to re-invoke SEIC. When a disabler is seen by the PCM, the circuit changes from "ground-source "to "open-circuit". After approximately 3 seconds SEIC drops out, returning the engine speed to base idle. To re-initiate SEIC, the operator must open the (SEIC Switch) to apply voltage to both the “PTO_REQUEST 1" input circuit.

SEIC RESISTOR CHART

3.5L iVCT & 3.5L PFDi		
ENGINE TARGET SPEED (RPM)	RESISTOR (Ω) (5%, 1/4 Watt)	VOLATGE (VOLTS)
700	34467	0.60
800	23434	0.84
900	17251	1.07
1000	13295	1.31
1100	10548	1.54
1200	8528	1.78
1300	6981	2.01
1400	5758	2.25
1500	5240	2.48
1600	3947	2.66
1700	3258	2.95
1800	2671	3.19
1900	2164	3.42
2000	1723	3.66
2100	1335	4.13
2200	991	4.13
2300	684	4.36
2400	409	4.60
2500	-	-
BCP		
700 - 1200*	100K Ω	

* RPM VARIES AS A FUNCTION OF BATTERY STATE OF CHARGE, REFERENCE BCP DESCRPTION

TRANSIT
SEIC / PTO: OPERATION

SEIC GENERAL SYSTEM BEHAVIOR

If an SEIC enabling condition is not met upon SEIC initialization:

- SEIC will not initiate. SEIC will require a "change-of-state" (voltage to both the “PTO_REQUEST” and "PTO_RELAY Output" circuits removed completely.) The enabling conditions must be met, and then SEIC and PTO operation may then be reinitiated.

If an SEIC disabler occurs:

- The "PTO_RELAY Output" circuit changes from "ground-source" to “open-circuit". After approximately 3 seconds SEIC drops out, returning the engine speed to base idle. SEIC will require a "change-of-state” (voltage to both the “PTO_REQUEST 1 (PTO)”.

The enabling conditions must be met, and then SEIC and PTO operation may then be reinitiated.

SEIC/PTO strategy function in the PCM is not affected by the loss of vehicle battery electrical power. SEIC Ramp Rate (fixed, not programmable):

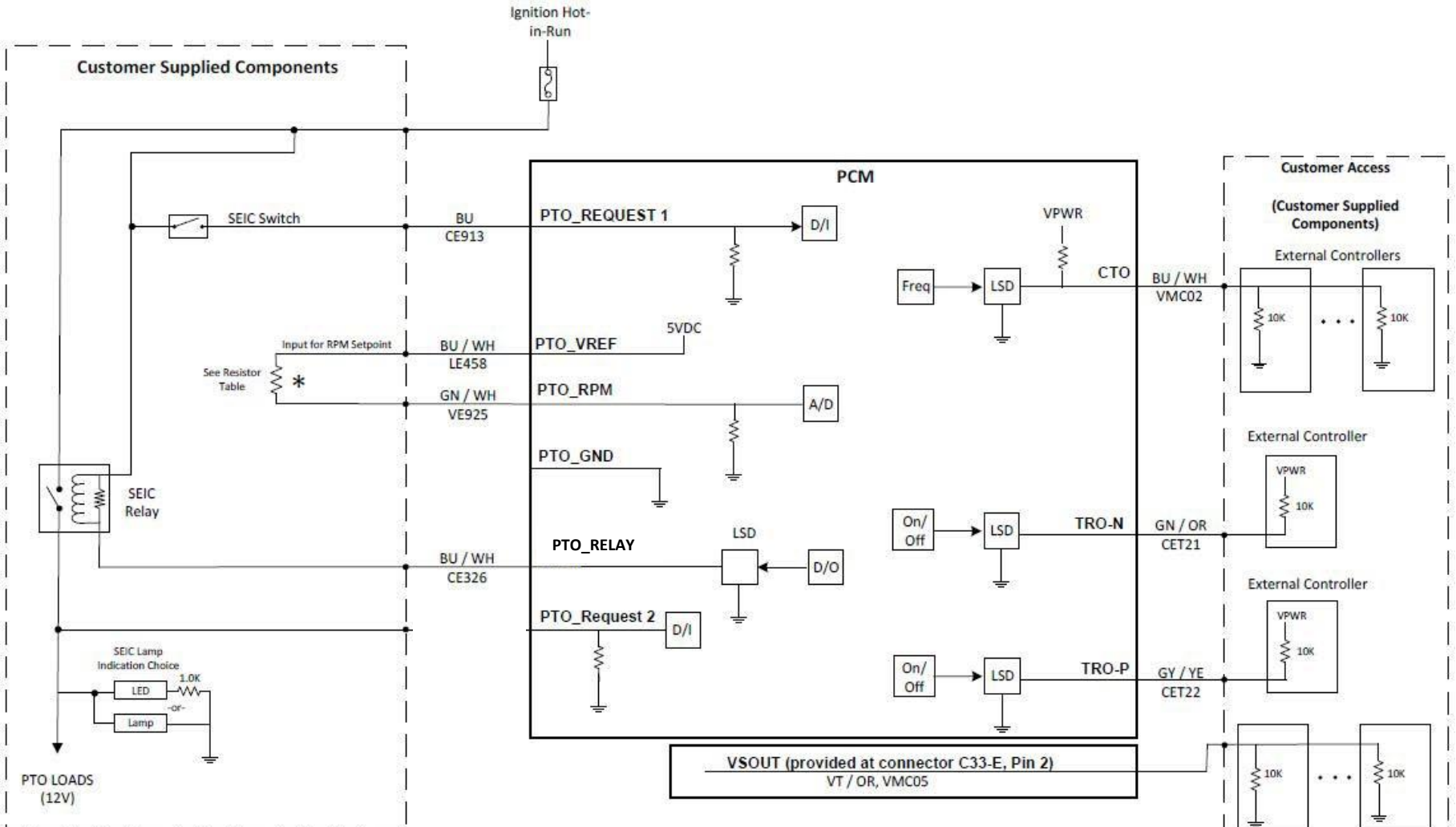
- 200 rpm/second.

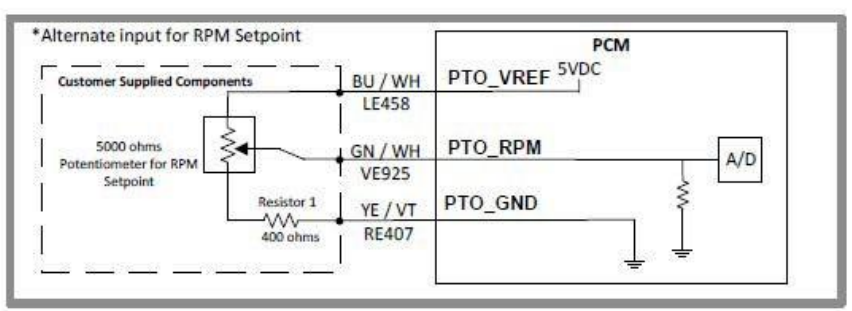
Correlation between engine speed and resistor values:

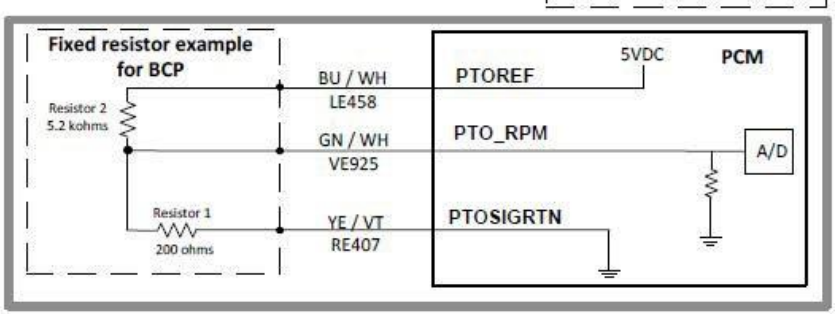
- The external voltage source that the aftermarket PTO system designer uses to command SEIC through the "PTO" or "PTO-REQUEST" circuits must be the same as that used by the PCM internally for predictable SEIC function. Reasoning is that a fully-charged vehicle battery fluctuates with ambient temperature.
- If there is a high electrical demand on the chassis battery, such as from aftermarket inverters or generators, etc., the actual elevated idle engine speed may vary with that demand for any given resistance in the SEIC circuit.
- Normal base engine calibration allows approximately +/-50 rpm fluctuation. If any factory vehicle accessories are used during SEIC, e.g. a/c, defroster, etc., then that fluctuation may increase to approximately +/-100 rpm or more.
- The sudden loss of aftermarket PTO hydraulic pressure during SEIC/PTO operation, like a ruptured hose, may send SEIC engine speed to near 3000 rpm. It is recommended that a hydraulic pressure switch linked to SEIC/PTO be added to disable SEIC/PTO when a hose ruptures.
- Because of a service brake circuit characteristic at engine-start, invoking SEIC may cause the diagnostic error code FFG_BOO to get flagged (recorded in the PCM). To avoid this, simply tap the service brake pedal sometime after engine-start and prior to invoking SEIC. Once the code is set, SEIC may not be available until it is erased.
- Gas engines require a "change-of-state" at the PTO-REQUEST 1 (PTO) Output circuit whenever a disabler turns off SEIC (remove battery voltage signal and re-apply).
- For aftermarket remote engine start-stop: a change-of-state is required to get SEIC to function again.

TRANSIT

SEIC / PTO: SCHEMATICS 3.5L & 3.5L GTDI ENGINES



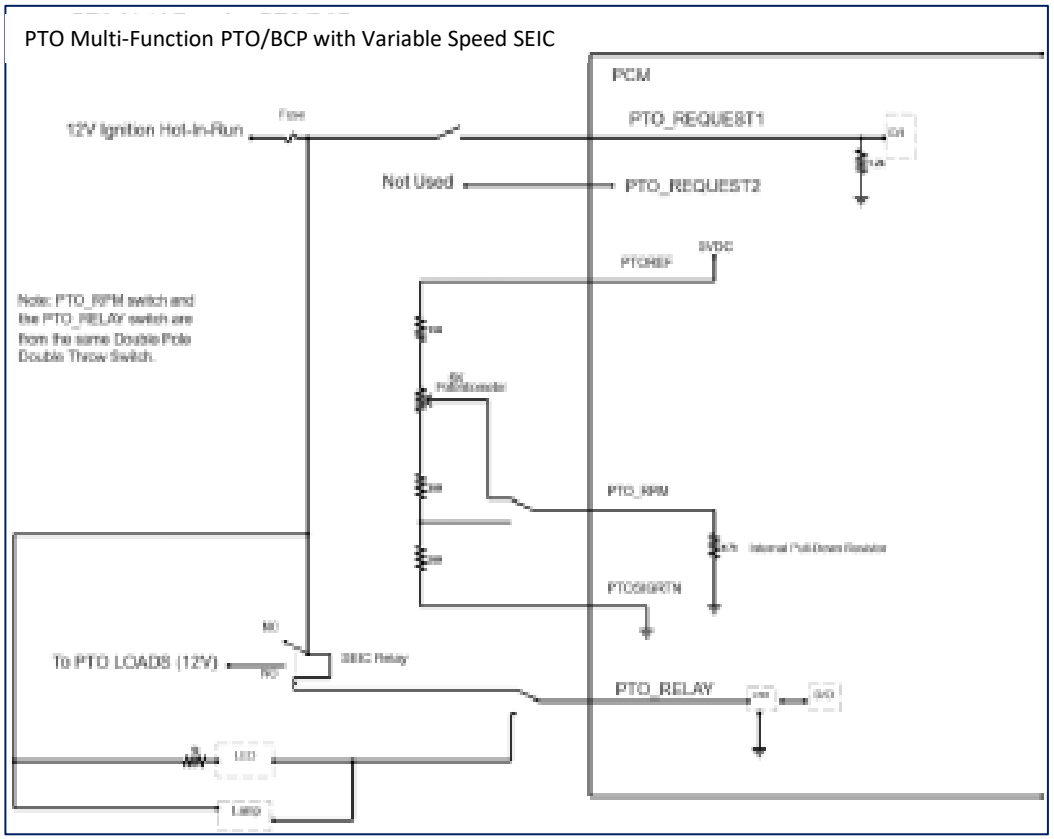




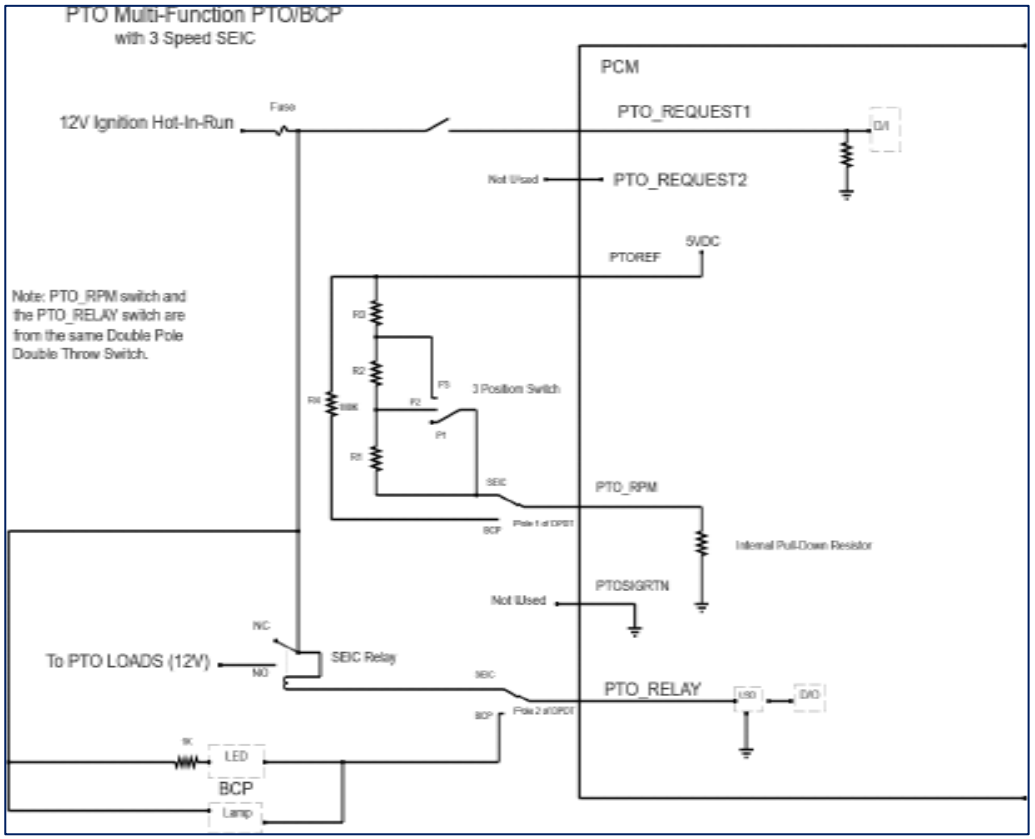
TRANSIT

SEIC / PTO: CIRCUIT DESCRIPTIONS

PTO Multi-Function PTO/BCP with Variable Speed SEIC



PTO Multi-Function PTO/BCP with 3 Speed SEIC



CUSTOMER ACCESS SIGNAL CIRCUIT DESCRIPTIONS

Refer to the Body Equipment Mounting Manual for more information.

CIRCUIT INTENT	WIRE TAG	DESCRIPTION
OUTPUT PARK-ONLY	TRO-P	3.5L - PCM PIN C1551B-40 CIRCUIT NO. CET22 WIRE COLOR: GRAY / BROWN
OUTPUT NEUTRAL-ONLY	TRO-N	3.5L - PCM PIN C1551B-81 CIRCUIT NO. CET21 WIRE COLOR: GREEN / ORANGE
OUTPUT VEHICLE SPEED	VSOUT	CIRCUIT NO. VMC05 CONNECTOR: C33-E PIN:4 SEE BEMM FOR SIGNAL SPECIFICATION.
OUTPUT ENGINE SPEED	CTO	3.5L - PCM Pin C1551B-40 Circuit No. VMC02 Wire Color: Blue / White
PASS-THRU		CIRCUIT NO. CAC17, FOUND AT: - VEHICLE INTERFACE CONNECTOR C11-H (4-PIN CONNECTOR), PIN #2, AT FIREWALL ON DRIVER SIDE OF THE ENGINE COMPARTMENT - VEHICLE INTERFACE CONNECTOR C12-A (6-PIN CONNECTOR), PIN #1, BEHIND LEFT SIDE OF CENTER STACK. - REQUIRES MODIFIED VEHICLE WIRING OPTION (53K)
PASS-THRU		CIRCUIT NO. CAC18, FOUND AT: - VEHICLE INTERFACE CONNECTOR C11-H (4-PIN CONNECTOR), PIN #3, AT FIREWALL ON DRIVER SIDE OF THE ENGINE COMPARTMENT - VEHICLE INTERFACE CONNECTOR C12-A (6-PIN CONNECTOR), PIN #2, BEHIND LEFT SIDE OF CENTER STACK. - REQUIRES MODIFIED VEHICLE WIRING OPTION (53K)

TRANSIT

SEIC / PTO: CIRCUIT DESCRIPTIONS

SEIC CIRCUIT DESCRIPTIONS - All circuits lead back to pins on the PCM		
CIRCUIT INTENT	**WIRE TAG**	**DESCRIPTION**
INPUT (VPWR)	PTO_REQUEST1	3.5L - PCM PIN **C1551B-87 CIRCUIT NO. CE913** / WIRE COLOR: BLUE 3.5L - PCM PIN **C175B-84 CIRCUIT NO. CE913** WIRE COLOR: BLUE • Applying vehicle battery voltage to this wire begins SEIC process. • Signals PCM to enter SEIC strategy. • Verifies safety enablers. • Elevates engine speed to target found at PTO-RPM circuit. • Invokes the PTO_RELAY circuit when safety enablers are met. • Looks for the target engine speed requested at the PTO_RPM circuit using a resistor or POT.
INPUT (VPWR)	PTO_REQUEST2	3.5L - PCM PIN **C1551B-91 CIRCUIT NO. VE935** WIRE COLOR: GREEN / 3.7L - PCM PIN **C175B-88 CIRCUIT NO. VE935** WIRE COLOR: GREEN - Not Used
OUTPUT	PTO_RELAY	3.5L - PCM PIN **C1551B-80 CIRCUIT NO. CE326** WIRE COLOR: GREEN/VIOLET / 3.5L - PCM PIN **C175B-96 CIRCUIT NO. CE326** WIRE COLOR: GREEN/VIOLET • A low-side driver, changing from "open-circuit" to "ground" indicating that the engine is ready for the PTO operation to begin and that a PTO load may be applied. • Intended for powering a PTO indicator lamp or turn on a relay coil (not to exceed 1 amp). • LED lights require adding a resistor in series.
INPUT (resistor)	PTO_RPM	3.5L - PCM PIN **C1551B-33 CIRCUIT NO. CE925** WIRE COLOR: GREEN / WHITE / 3.5L PCM PIN **C175B-85 CIRCUIT NO. CE925** WIRE COLOR: GREEN / WHITE • Add a resistor or a potentiometer to obtain fixed or variable engine target speed. • Combine in circuit with PTO_VREF (+5V). • Speed range available: 910 rpm to 2400 rpm
OUTPUT	PTO_VREF	3.5L GTDI - PCM PIN **C1551B-11 CIRCUIT NO. LE458** WIRE COLOR: BLUE / WHITE / 3.5L GAS - PCM PIN **C175B-52 CIRCUIT NO. LE458** WIRE COLOR: BLUE / WHITE • A 5-volt reference, buffered against shorts to ground or power, used to complete the resistor circuit for engine speed selection.
INPUT	PTO_GND	3.5L - PCM PIN **C1551B-18 CIRCUIT NO. RE407** WIRE COLOR: YELLOW / VIOLET / 3.5L - PCM PIN **C175B-51 CIRCUIT NO. RE407** WIRE COLOR: YELLOW / VIOLET • A ground reference, buffered, used to complete the resistor circuit for engine speed selection when a potentiometer is used.

BATTERY VOLTAGE SOURCES (VPWR) - Refer to the Body Equipment Mounting Manual for more information.		
CIRCUIT INTENT	**WIRE TAG**	**DESCRIPTION**
HOT-AT-ALL-TIMES		**CIRCUIT NO. SB153** / Fused 40-amp circuit (F53) / Requires modified vehicle wiring option (53K). Located: • Vehicle Interface Connector C11-H (4-PIN CONNECTOR), PIN #4, at firewall on driver side of the engine compartment • Vehicle Interface Connector C12-A (6-PIN CONNECTOR), PIN #3, behind left side of center stack. • Vehicle Interface Connector C33-C (6-PIN CONNECTOR), PIN #3 , behind Passenger side airbag, above glove box. **CIRCUIT NO. SB118** CONNECTOR: C33-C PIN:6 / Fused 40-amp circuit (F18) Located: • Vehicle Interface Connector C33-C (6-PIN CONNECTOR), PIN #6, behind Passenger Side Airbag, above glove box. • Requires modified vehicle wiring option (53K) Customer Connection Point / Fused 60-amp VBATT feed. Located: Right side rear of driver seat pedestal.
IGNITION HOT-IN-RUN		**CIRCUIT NO. CB121 CONNECTOR: C33-E PIN:6** / Fused 10-amp circuit. Located: Vehicle Interface Connector C33-E (6-PIN CONNECTOR) on right side of driver seat pedestal beneath driver seat.
		CIRCUIT NO. CAC14 / Fused 40-amp circuit (F52) / Requires modified vehicle wiring option (53K) Located: • Vehicle Interface Connector C11-H (4-PIN CONNECTOR), PIN #1, at firewall on driver side of the engine compartment • Vehicle Interface Connector C12-A (6-PIN CONNECTOR), PIN #4, behind left side of center stack • Vehicle Interface Connector C33-C (6-PIN CONNECTOR), PIN #5, behind Passenger Side Airbag, above glove box.
UPFITTER SWITCH OUTPUT: IGN-HOT/ACC LOCATED: VEHICLE INTERFACE CONNECTOR C33-H (4-PIN CONNECTOR) RIGHT SIDE OF DRIVER • REQUIRES UPFITTER SWITCH OPTION 67C	AUX-1	[20-amp] **CIRCUIT NO. CAC05 CONNECTOR: C33-H PIN:1**
	AUX-2	[20-amp] **CIRCUIT NO. CAC06 CONNECTOR: C33-H PIN:2**
	AUX-3	[20-amp] **CIRCUIT NO. CAC07 CONNECTOR: C33-H PIN:3**
	AUX-4	[20-amp] **CIRCUIT NO. CAC08 CONNECTOR: C33-H PIN:4**

TRANSIT

ELECTRICAL: REAR VIEW CAMERA (CHASSIS CAB & CUTAWAY)

FORD CAMERA KIT COMPLIANCE CAPABILITY:

- Ford has tested the rear-view camera kit and all the camera/display pairings offered are capable of meeting the backup camera portion of FMVSS 111 when mounted in the zone defined below.

COMPLIANCE TO FMVSS 111 WILL BE THE RESPONSIBILITY OF THE UPFITTER WHO ALTERS THE VEHICLE

- This information is provided for directional purposes only, based on testing done by Ford. If equipped with a rearview mirror display, 4 inch or 8 inch display the camera included in kit is capable of complying with FMVSS 111 rearview camera requirements when mounted in the areas defined in Figure 3.

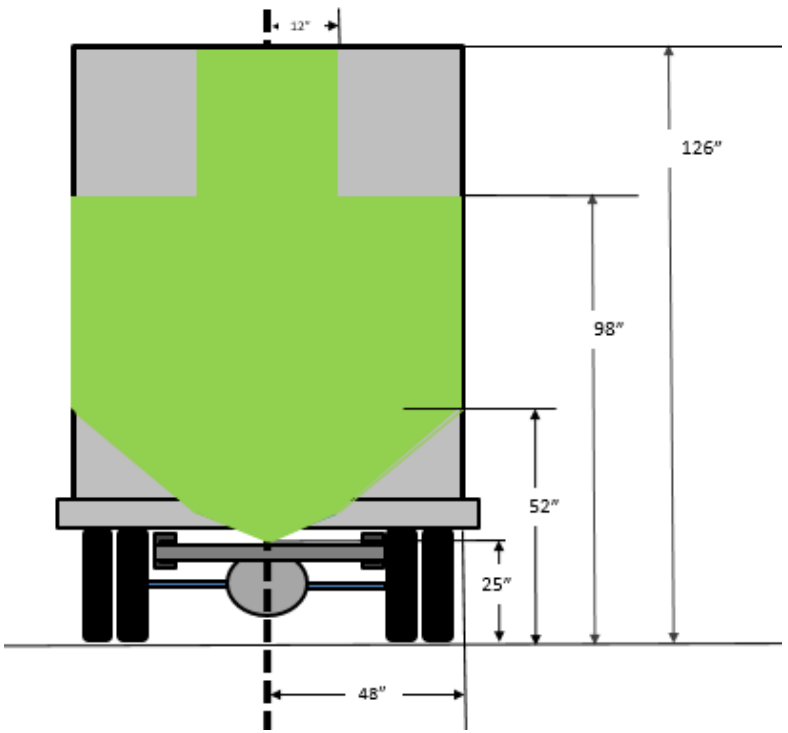
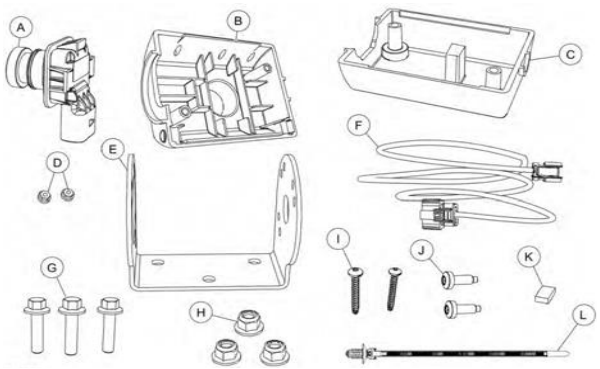


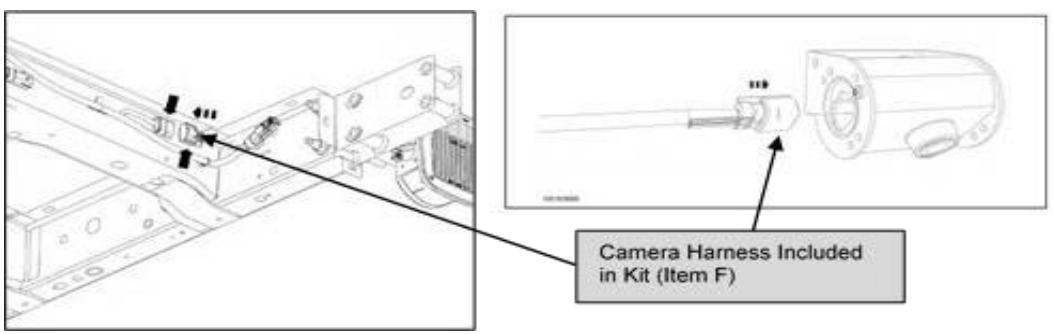
FIGURE 3: Coverage 4-inch display and 8-inch display- Please see the Order Guide for all available options.

REAR VIEW CAMERA KIT:

- A rear-view camera and prep kit for incomplete vehicles is available as an orderable option (Order Code 61A - see Figures 1 and 2) with all Cutaway and Chassis Cab incomplete vehicles. The rearview mirror display is the standard display with Option Code 58T. The All-other audio options will display in the multifunction screen.
- **If the backup camera kit (61A) is not ordered with the vehicle, it cannot be retrofit later.**



ITEM	QTY	DESCRIPTION
A	1	REAR VIEW CAMERA
B	1	FRONT CAMERA CASE HALF
C	1	REAR CAMERA CASE HALF
D	2	SCREW RETAINING NUTS
E	1	MOUNTING BRACKET
F	1	WIRE HARNESS
G	3	BOLTS
H	3	NUTS
I	2	SCREWS (LONGER)
J	2	SCREWS (SHORTER)
K	1	FOAM PAD
L	1	PUSH PIN TIE STRAP



NOTE:
Final Stage Manufacturers who complete vehicles 10,000 lbs. GVWR or less produced by Ford as incomplete (e.g., pickup box delete, chassis-cabs, cutaways) on or after 5/1/2018 must meet these new FMVSS 111 requirements. Ford will issue additional bulletins containing information to assist Final Stage Manufacturers achieve compliance with the Ford Reverse Camera Kit on incompletes.

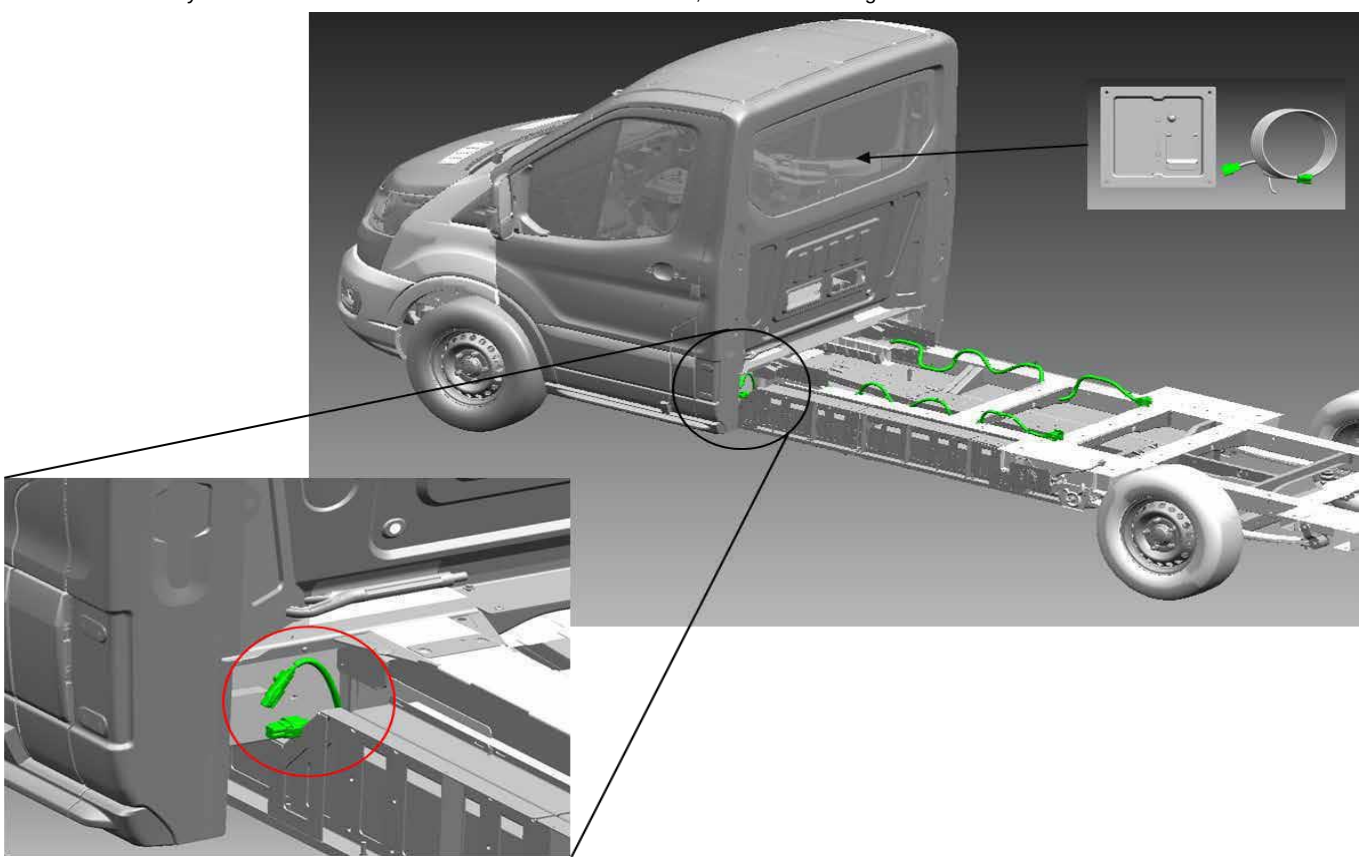
The NTEA has provided detailed information and educational resources to help members better understand the new FMVSS 111/Reverse Camera Conformity (including a manual and test kit). Ref. https://www.ntea.com/fmvss111rearvisibility

TRANSIT

ELECTRICAL: PRO POWER ONBOARD FEATURE (CHASSIS CAB & CUTAWAY)

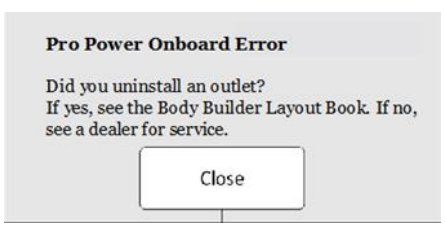
PRO POWER ONBOARD

- A cab outlet is installed in the Passenger seat pedestal.
- An auxiliary outlet is provided in dunnage to be installed in the Second Unit Body.
  - Do not cover warning labels.
  - The aux outlet is water resistant but should be installed such that it is protected from direct spray or flow of water.
  - The aux outlet should be installed on a substantially vertical surface.
  - The aux outlet should not be installed near any significant source of heat.
  - The aux outlet has a ~550mm wiring pigtail. The included grommet and retaining clip may be carefully removed from the wiring if desired.
  - Attach the aux outlet to the SUB using all four holes provided (recommend M6 or #12 Pan head screw with 12mm (0.47 in) max head diameter and 4.8 Nm (3.5 ft-lb) max installation torque).
  - In case the auxiliary outlet is not planned to be installed (either it cannot be packaged in the SUB or is not desired by the customer), the Pro Power Onboard feature will function as delivered from the factory with the cab outlet only.
- A 6m (18 ft) extension wiring harness is provided in dunnage to allow flexibility in placement of the auxiliary outlet. The aux outlet pigtail can also connect directly to the chassis wiring if preferred.
  - The wiring connectors are sealed and do not need special protection from the elements.
  - Best practices for wire routing and retention should be followed, see the Ford General Body Builder Layout Book for more information.
- Chassis wiring connectors for the auxiliary outlet are located near the LH frame rail at back of cab. These connectors have sealed caps which should remain in place until the rear outlet is plugged in (directly or via extension harness) to prevent contamination and potential shock hazard. The vehicle should be in the “key off” state when removing the sealed caps from the chassis wiring and connecting the extension harness and aux outlet pigtail.
- Software change for 2024MY – No need to reconfigure or ‘turn-on’ auxiliary outlets
  NOTE: If the auxiliary outlet is connected to the vehicle and later removed, the chassis wiring connectors must be sealed before the vehicle re-enters service.



NOTE: the error message shown below may appear if:

- One of the outlets has been disconnected intentionally – The message will appear for 3 key cycles during which time the PPO system will not be functional. Starting with the 4th key cycle, the system will operate normally with the remaining outlet only. The disconnected outlet can be reconnected at any time and the system will adapt.
- There is a fault somewhere in the PPO system – If nothing was disconnected intentionally, please contact a Ford dealer for service. The message will appear for 3 key cycles however the fault will persist after that time. If the fault is isolated to just one of the outlets, the LED on that outlet will continue to blink while the PPO system may return to normal function (with the remaining outlet only) starting on 4th key cycle.


Pro Power Onboard Error
Did you uninstall an outlet?
If yes, see the Body Builder Layout Book. If no, see a dealer for service.
Close

Ford PRO

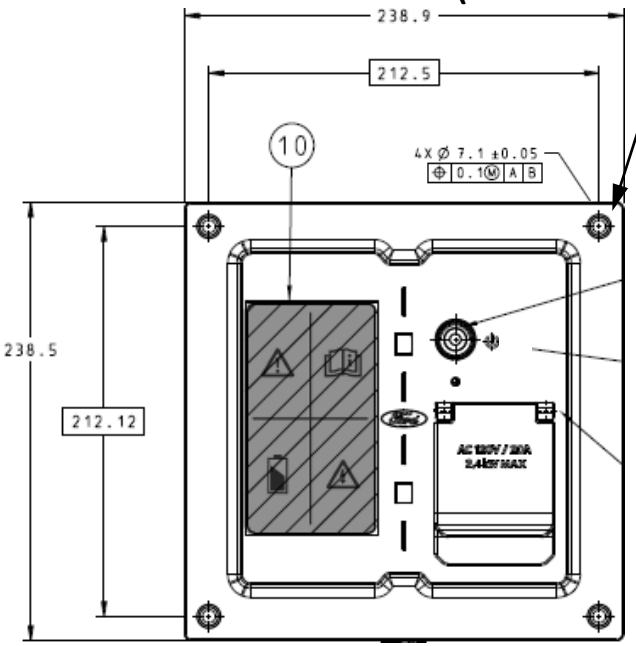
Body Builders Layout Book

TRANSIT

ELECTRICAL: PRO POWER ONBOARD FEATURE (CHASSIS CAB & CUTAWAY)

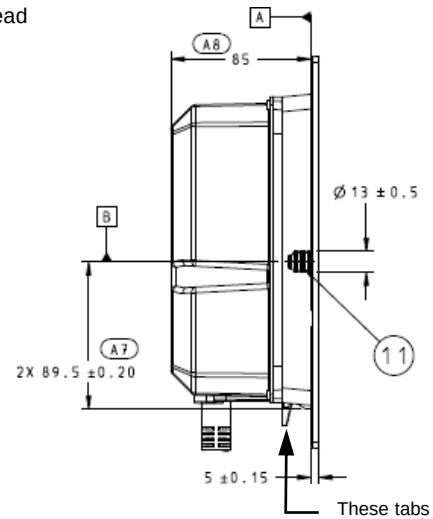
Wiring Length from tip of Strain Relief (+/- 10mm):

to Grommet - 290mm
to Clip – 430mm
to Signal connector – 550mm
To Power connector – 580mm



FRONT VIEW AUX OUTLET

ALL DIMENSIONS IN mm



SIDE VIEW AUX OUTLET

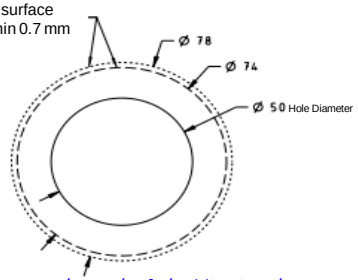
WIRING CLIP MATING SURFACE

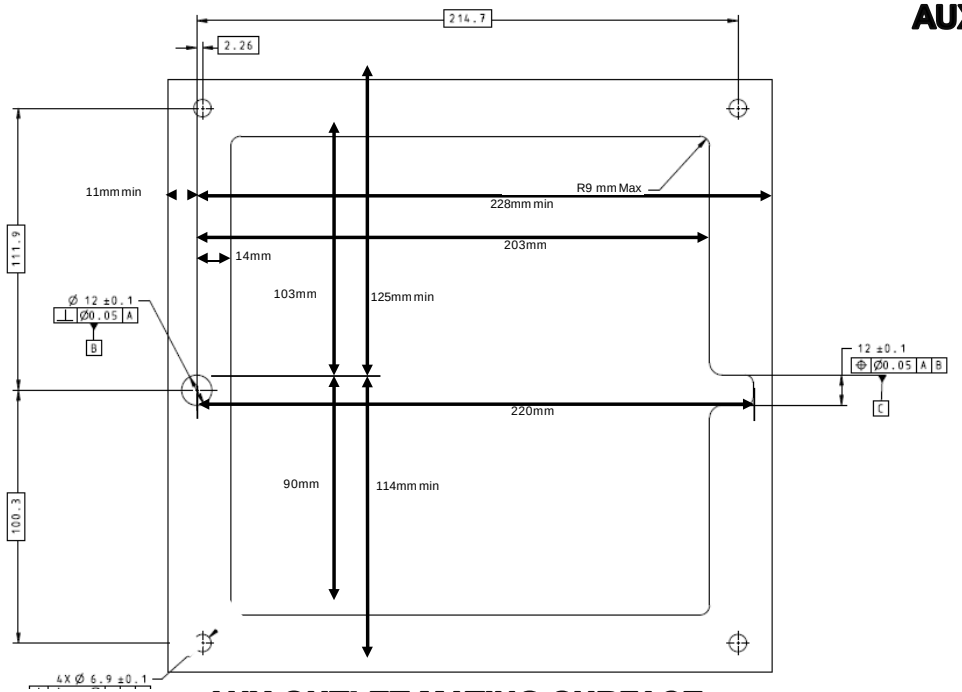
SHEET METAL THICKNESS RANGE: 0.60mm - 6.75mm
APPLICABLE OVAL HOLE SIZES:
A. 6.2 X 12.2mm
B. 6.5 X 12.5mm
C. 6.5 X 13.0mm
D. 7.0 X 12.0mm

WIRING GROMMET MATING SURFACE

Mating surface thickness 0.5 – 3.0 mm

This area free from surface defects and flat within 0.7 mm





AUX OUTLET MATING SURFACE

TRANSIT
CHANGE CONTROL

REVISION:

- Revised Camera kit coverage image (figure 3) 20240513
- Revised/ADDED Weight Data 20240405
- REMOVED 20230617
  - C1 weight chart inputs
- ADDED SECTION: 20230530
  - D/R: BUS Step Incorporation (Chassis Cab & Cutaway - 3P Battery Only)

- REMASTERED 20230518

- PUBLISHED 20230303